DISSERTATION ON

A STUDY TO ASSESS THE EFFECTIVENESS OF MOIST HEAT APPLICATION OVER THE SACRUM ON PAIN DURING THE FIRST STAGE OF LABOUR AMONG PRIMIGRAVIDA MOTHERS ADMITTED AT INSTITUTE OF OBSTETRICS AND GYNECOLOGY, EGMORE, CHENNAI-08.

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CERTIFICATE

This is to certify that this dissertation titled **A study to assess the Effectiveness of Moist heat application over the sacrum on pain during the first stage of labor among primigravida mothers admitted at Institute of Obstetrics and Gynecology, Chennai-08** is a bonafide work done by Mrs. A. Subbulakshmi, MSc (N) II year student, College of Nursing, Madras Medical College, Chennai – 600003 submitted to THE TAMILNADU DR.M.G.R MEDICAL UNIVERSITY, CHENNAI, in partial fulfillment of the requirements for the award of degree of Master of Science in Nursing, Branch – III, Obstetrics and Gynecology Nursing, under our guidance and supervision during the academic year 2015 - 2017.

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ABSTRACT

Title: "A study to assess the effectiveness of moist heat application over the sacrum on pain during first stage of labor among primigravida mothers admitted at Institute of Obstetrics and Gynecology, Chennai - 08".

Childbirth is a painful experience for almost all women. The pain experienced during labor has multiple physiological and psychosocial dimensions and its intensity can vary greatly from one woman to another woman.

Need for Study:

Pain is a common phenomenon and is an inevitable part of the childbirth process. The fear of childbirth pain is the most important reason that makes women to refuse delivering in a natural way worldwide and by this reason it was led to caesarean section. Effective control of labor pain is very important for the health and society.

Objectives:

- To assess the pre-test and post-test level of labor pain during first stage of labor among primigravida mothers in experimental group and control group.
- To find out the effectiveness of moist heat application on sacrum during first stage of labor among primigravida mothers in experimental group.
- To compare the pre-test and post-test level of labor pain during first stage of labor among primigravida mothers in experimental group and control group.
- To associate the post-test level of labor pain during first stage of labor among primigravida mothers in experimental and control group with their selected demographic variables.

Key words:

Primigravida mother, moist heat, effectiveness, pain perception, first stage of labor

Research Methodology:

- Research approach – Quantitative approach
- Duration of the study – Four weeks (from 20. 11.16 to 18.12.16)
- Study setting – Labour ward at IOG
- Study design – Quasi experimental pre-test and post-test design
- Study population – Primigravida mothers with first stage of labour pain
- Sample size – control 30 samples and experimental 30 samples

Data collection procedure:

After obtaining informed and written consent approximately two or three samples were selected every day and moist heat application was given over the sacrum during first stage of labour temperature of hot water is 104^0 – 110^0 F for 20 minutes with one-hour interval for two weeks.

Data Analysis:

The data were analyzed by using descriptive statistics like mean, standard deviation, frequency distribution, and percentage. Inferential statistics like paired t-test, chi-square test, extended McNemar's test.

Study Results:

The findings of the study revealed that experimental group had less pain perception during first stage of labor (paired t-test P value is 0.001). There is a statistical significance in reduction of pain level during the first stage of labor which shows the effectiveness of moist heat application with calculated P test value.

Discussion:

There is a significant difference in level of pain perception during first stage of labor among primigravida mothers in experimental group. There is significant association with their selected demographic variables such as elders, rural, more educated and Non-consanguineous mother and 39 weeks of gestational age mothers had more pain reduction score than the others.

Recommendations:

An experimental study to assess the effectiveness of moist heat application on labor pain during first stage of labor in second and third gravida women in labor.

Conclusion:

These data suggest that application of moist heat during first stage of labor among primigravida mothers can reduce the pain level.

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ABBREVIATION

TENS	-	Transcutaneous Electrical Nerve stimulation
STAI	-	State Trait Anxiety Inventory
VAS	-	Visual Analogue scale
VASP	-	Visual Analogue Scale for pain
ANOVA	-	Analysis of variance
IOG	-	Institute of Obstetrics and Gynecology
SPSS	-	Statistical Package for the Social Sciences

CHAPTER I

INTRODUCTION

“Birth is a pinnacle where women discover the courage to become mothers.”

-Anila Diamant

Childbirth is one of the most marvelous and memorable segment in a woman’s life. It does not really matter if the child is the first, second or the third one. Each experience is unique and calls for a celebration. Natural childbirth is a beautiful experience with many safe options and benefits. Women dream of the perfect birth. The fear and anxiety about childbirth often prevents most women from enjoying this experience. However, an adequate knowledge about signs of labor and delivery in general can impart a feeling of confidence and a sense of emotional wellbeing, very crucial in ensuring a successful labor.

Childbirth is a painful experience for almost all women. The pain experienced during labour has multiple physiological and psychosocial dimensions and its intensity can vary greatly from one woman to another. Labour pain involves complex neuro behavioural responses to allogeneic stimuli and provides a personal and unique experience to individual women. The cause-effect relationship in labour pain does not always correspond to a clinical response; what matters is to understand the pain felt by the pregnant woman and to provide pain relief.

Pain is a common phenomenon and is an inevitable part of the childbirth process. This pain is a complicated, personal, mental and multi-facial phenomenon and is affected by economic, social, cultural, biologic and psychological factors. Continuous labour pain is effected by respiratory system, blood circulation, endocrine glands and other body activities. In other hand, the fear of childbirth pain is the most important reason that makes women to refuse delivering in a natural way worldwide and by this reason it was led to caesarean section. So, effective control of the labour pain like other acute pains is very important for the health and society.

There are different methods to reduce the labour pain that is divided into pharmacological and non-pharmacological interventions. Non-pharmacological methods in labour pain reduction are frequently simple and cheap, and can be used as a successor or ancillary treatment with other drugs. Epidural and spinal analgesic techniques are the gold standards for pain relief during labor and delivery. However, they may be associated with an increased risk of instrumental vaginal delivery and caesarean section. Hence, epidurals for labor pain should be provided only settings that are equipped for instrumental delivery and emergency caesarean section. Non-pharmacological interventions (e.g. immersion in water, relaxation, acupuncture, massage) appears to be safe and may be effective and applied in under resourced settings and or at stages of labor.

One of the Non-pharmacological methods in labor pain reduction is heat therapy. Using heat with various means during labor is simple, cheap and available and it does not need previous skills and if it used correctly, it has few side effects. Kalvie and Risto (2005) in their research found that the heat caused a small increase in uterine contraction and no any effect on fetal heart rate. It seems that the heat stimulates heat receptors of skin and deeper tissues, and it may reduce the pain as per the gate control theory.

Anxiety is commonly associated with increased pain during labor and may modify labor pain through psychologic and physiologic mechanisms. Fear of pain may be one component of labor-related anxiety and has a high correlation with pain levels reported during first stage of labor.

Though experiencing pain during labor is a universal feature of childbirth, the degree of pain and each woman's ability to cope with it will depend on a number of different factors. These include the woman's experience, her psychological makeup, the degree of preparation for birth, her cultural beliefs and practices, the quality and strength of uterine contractions, the support she receives during labor and birth, and the position of the fetus.

Many simple, effective, low-cost methods to relieve labor pain can be initiated by benefits of improved labor progress, reduction in use of riskier medications, patient satisfaction and lower costs. These non-pharmacological methods are categorized by the mechanisms through which they reduce pain or improve labor progress; diminishing the painful stimulus at the source, providing alternate stimuli to inhibit pain awareness and reducing the woman's negative reaction to the pain.

Pregnancy and childbirth are the fragile processes which require more than just medical care. It is important to alleviate pain, but commonly, it is not the quantum of pain experiences, but whether she will meet her goals in coping with the pain that influences her perception of the birth experiences as "good or bad".

1.1 Need for the Study

The need to take up this study by the observation of women in labor who are struggling to cope up with the stress of labor pain.

Most women think that pain is going to be a major part of giving birth. Health professionals can help to reduce women's fears by giving precise, accurate and relevant information before hand and explaining what pain relief will be available and helpful at the place where the women will be in labor. Read G.D., a British obstetrician says that primitive tribes had little or no pain in labor and calls that as a natural birth. He believed that the fear of childbirth is acquired and is culturally induced in women.

Intervention for pain and discomfort during labor and childbirth is a major part of modern obstetric care of laboring women. During the late 19^{th} and 20^{th} centuries, the goal of relief from pain during childbearing and increased maternal safety prompted many women to seek the services of physicians for childbirth. The characteristics of pain, its individuality, subjectivity and intensely personal nature, is why nurses who care for laboring women must learn to sensitively understand, assess and intervene for pain and discomfort according to the individual woman's needs and desires.

Besides, the investigator noticed a considerable number of women in labor are not receiving any measures for their comfort and pain relief. This will increase pain and anxiety decreasing the progress of labor in turn which will lead to maternal and fetal distress. The application of Moist heat as pain-relieving measures is a simple low cost and effective method. It can be applied by the midwife or the support personnel during first stage of labor. Hence, the study is to evaluate the effectiveness of Moist heat application to primigravida mothers in first stage of labor. This, in turn, is assumed to help in providing better care during intrapartum period as well as for the mothers to have safe childbirth experience.

1.2 Statement of the problem

A study to assess the effectiveness of moist heat application over the sacrum on pain during first stage of labor among primigravid mothers admitted at Institute of Obstetrics and Gynecology, Chennai-8.

1.3 Objectives

- To assess the pre-test and post-test level of labor pain during first stage of labor among primigravida mothers in experimental group and control group.
- To find out the effectiveness of moist heat application on sacrum during first stage of labor among primigravida mothers in experimental group.
- To compare the pre-test and post-test level of labor pain during first stage of labor among primigravida mothers in experimental group and control group.
- To associate the post-test level of labor pain during first stage of labor among primigravida mothers in experimental and control group with their selected demographic variables.

1.4 Operational definitions

Effectiveness

Effectiveness refers to the extent to which the heat application has its impact on reducing the labor pain

Moist Heat

Moist heat refers to warmed water by means of hot water bag is filled with warmed plain water (Temp $104^0 – 110^0$ F). Hot water bag to applied on sacrum for a period of 20 minutes at 1hour interval in first stage of labor.

Sacrum

Sacrum is at the bottom of the spine and lies between the 5^{th} segment of the lumbar spine and the coccyx. The sacrum is a triangular shaped bone and consists of five segments that are fused together.

Pain

Pain is an unpleasant physical sensation, due to uterine contractions and other physiological changes in normal labor.

First Stage of Labor

First stage of labor refers to it starts from the onset of true labor pain and ends with full dilatation of cervix (10cm)

Primigravida Mothers

Primigravida mother refers to a woman who is pregnant for the first time.

1.5 Assumptions

- Primigravida mothers in first stage of labor will experience different levels of pain during uterine contraction.
- Hot application as a non-pharmacological measure may help to reduce the labor pain.
- Hot application may produce comfort during first stage of labor.

1.6 Hypotheses

H_1 The mean post-test level of labor pain during first stage of labor among primigravida mothers in experimental group will be significantly lower than the mean post-test level of pain during first stage of labor in control group.

H_2 The mean post-test level of labor pain during first stage of labor among primigravida mother in experimental group was significantly lower than their mean pre-test level of pain during first stage of labor in control group.

H_3 There will be significant association between the post-test level of labor pain during first stage of labor among primigravida mothers in experimental group and control group with their selected demographic variables.

1.7 Delimitation

1. The study was limited to primigravida mothers who are in first stage of labor and admitted in a labor room at Institute of Obstetrics and Gynecology, Chennai-8.
2. The study was limited to the period of four weeks.

CHAPTER II

REVIEW OF LITERATURE

The chapter divided into two parts. Part I consist of literature review related to the study and Part II consist of Conceptual frame work.

2.1Literature review related to the study

2.1.1 Labor pain perception

2.1.2 Fear of labor pain

2.1.3 Non-pharmacological pain relief methods during labor and childbirth.

2.1.4 Heat therapy during labor

2.1.1 Labor pain perception

Lydia Aziato, Angela kwartemaa Acheampong, Kitimdow Lazarus umoar (2017) conducted an exploratory descriptive qualitative study to evaluate the labour pain experience and perceptions among post partum women in Ghana. Fourteen postnatal mother were purposively sampled and were engaged in semistructured individual interview. The research findings showed the women experiences during labour pain rated as mild, moderate, severe and the pain was felt in the waist, vagina, lower abdomen. Finally concluded that is necessary for all health professionals to manage labour pain effectively.[27]

Khaskheli M, Baloch S (2010) conducted a descriptive study to examine the woman's self-perception of labor pain, understanding and satisfaction during childbirth with 400 laboring women at Liaquat University Hospital, Hyderabad. Four hundred low risk healthy laboring women were participated in the study. All the complicated and high-risk mothers were debarred from the investigation. This study showed that majority of women experienced that childbirth was an exhausting experience and few were reported that childbirth was an acceptable pain experience. Finally, it was concluded that childbirth can be an excellent occurrence with efficient prenatal counselling. A high skilled approach and tender loving care may be the solution to a painless childbirth.[1]

Pirdel M and Pirdel L (2009) conducted a study to investigate the factors that induce labor stress, and the association between ecological aspect and pain insight among laboring women. This descriptive-comparative study was done with 300 first time mothers and 300 second and third time mothers who were applicant for normal vaginal delivery, was erratically selected and questioned. Results indicated that there was a positive association between pain and the environmental stressors in first time mothers and in multiparous women. The study was concluded that such painful interventions during labor and childbirth may adversely affect the maternal and neonatal outcomes, as a result of psychological distress experienced by the mother by seeing such hurting instruments and interventions.[2]

Capogna, Camorica et al (2009) conducted a comparative study to evaluate the quality and intensity of the cognitive descriptors of labor pain between nulliparous and multiparous. One hundred and eighty-four parturient were selected as a sample and divided into four groups according to parity (nulliparous and multiparous women) and stage of labor (early and late). A short-form McGill pain Questionnaire and Visual analogue pain scale were used as a sample. The research findings showed that the most frequent descriptors used were cramping, pulling, hot, stinging, aching, heavy, tiring, exhausting and unbearable. The intensity of "cramping", "stinging" and "aching" was greater in nulliparous women($P<0.0001$) and the intensity of "heavy', "stinging", and "aching" increased as labor progressed in both groups ($P<0.0001$). The researcher concluded the effective and cognitive components of labor pain are frequently communicated with a restricted number of pain descriptors and may be affected by obstetric variables.

Diane Brage Hudson, Barbara sittner, Christie campbell Grossman, Fannie Gaston Johansson (2007) conducted a descriptive study was conducted to describe the quality and intensity of adolescent's pain during the progression of labor. The Gaston-Johansson Pain-o-meter was administered to 33 adolescents during the three labor phases (2-4cm, 5-7cm, and 8-10cm) following a contraction. The most frequently selected sensory words were cramping in phase I and pressing in Phase II and III. Miserable and killing were the most commonly chosen affective words during the three labor phases. The results showed that total pain intensity

scores were highest during Phase III of labor and delivery. A t-test of independent samples found that quality and intensity pain scores for primi parous and multiparous adolescent participants were not significantly different during the progression of labor.[3]

Lubna Abushaikha, Arwa Oweis (2007) conducted a descriptive study was conducted to assess labor pain experience and intensity among 100 low risk Jordanian parturient who delivered vaginally in labor room of a major hospital in the city of Amman. Three instruments, the numeric pain scale, a pain assessment questionnaire and demographic questionnaire were used to assess labor experiences and labor pain experience of labor pain were found. Although 61% of the Dutch women received no pain medication during labor. Whereas, the American women were only 16%. There was no difference between the groups in postpartum rating of labor pain (34.9% Vs 36,6%) as pain expected. The American women expected labor pain more painful and expected to require more medication to manage the labor pain. The Dutch women see birth as a natural process and are biased against any sort of interference. This single comparative study highlights the important influence of culture on expectation and attitudes towards labor pain.[4]

2.1.2 Fear of labour pain

Storksen et al, (2013) recently conducted a study to assess the influence of childbirth experience from earlier deliveries in Norway. Information was collected by using questionnaire from 17-32 weeks. More than 80% of women experienced severe obstetric complications that result from fear about childbirth.

Zahra Alipour, Minoor Lamyian, Ebrahim, Hajizadeh, Maryam Agular Vafaei et al, (2012) conducted a study to investigate about anxiety and fear of childbirth in prenatal period that may lead to postnatal depressive symptoms. one hundred and sixty childbearing women participated from 10 antenatal health centers. Data were collected by using the State-Trait Anxiety Inventory (STAI) and completed at 28 to 38 weeks of gestation. Follow up was done after 45 days and 3 months of childbirth. The results found that postpartum depression was associated with prenatal fear.[28]

SS Adams, M Eberhard-Gran, A Eskild (2012) conducted a prospective study on 2206 pregnant women to find out the relationship between fear of childbirth and period of labor. The study was conducted in women from 32 weeks of gestation to till delivery. 75.5% of women had fear of childbirth which significantly increased the labor period when compared with women with no such fear.[29]

Laursen M, Johansen C, Hedegaard M et al., (2009) studied the relations among women with fear of childbirth and crisis caesarean section. The study was conducted among 25297 healthy nulliparous women with uncomplicated pregnancy. The study result reported that early and late fear of childbirth was associated with emergency caesarean. Fear of the childbirth also augmented the risk of dystocia.[5]

Rouhe H Salmela-Aro K, Toivanen R, TOkola M, Halmesmaki E, Saisto T et al., (2013) conducted a study related to fear of childbirth at three different stages i.e. parity, gestational age, and obstetric by using questionnaire. Their study found that, high score of fear about childbirth was with nulliparous women that parous women similarly was higher in soon after pregnancy. Earlier delivery experiences also a major part of fear during delivery. Most of the women asked caesarean section and were often consulted in psychiatric clinics for their fear about childbirth.[6]

Fenwick et al., (2009) investigated the level of fear among pregnant women before and after birth. The results were associated with the perinatal birth outcomes. 26% of childbearing women were reported less fear about childbirth, 48% were reported moderate level of fear and 26% of women had more fear. The study reported that fear before childbirth was associated with surgical interventions and high use of certain pain medications. The prenatal fear was reduced after childbirth when there were no complications to mother and baby. The study insisted about the support given to pregnant women from the conception till delivery.

2.1.3 Non-pharmacological pain relief methods during labour and childbirth

Acupressure and Acupuncture

Indra V (2017) conducted at selected Hospitals in Puducherry. Its design was a randomized controlled clinical trial study using a single-blinded method. One hundred (100) primigravida women in labor were randomly assigned to either the SP6 acupressure (n = 50) or control group (n = 50). Acupressure was practiced 35 times in total on the SP6 point of both legs in the SP6 acupressure group; 15 times (during contraction) when cervical dilation was 2-3 cm, 10 times when cervical dilation was 5-6 cm and 10 times at 9-10 cm dilation, while the women in the control group received standard care. Labor pain was measured five times using a structured questionnaire of a subjective labor pain scale (visual analogue scale-VAS) when dilation was 2-3 cm (VAS 2), 5-6 cm (VAS 3) and 8-9 cm (VAS 4) before and after acupressure was applied to the SP6 point (VAS 1), and finally at the early postpartum period (VAS 5). The duration of labor in both groups was measured with a parto-graph and the length of delivery time was calculated in two stages: from 3 cm cervical dilation to full cervical dilation, and from full cervical dilation to delivery. There were significant differences between the groups in subjective labor pain scores (except VAS 4) ($P < 0.001$). The duration of the Phase one (3 cm dilatation to full dilatation) and Phase two (full dilatation to birth) in the acupressure group was shorter than the control group (Phase one, 225 min and 320 min, respectively; Phase two, 15 minutes and 20 minutes, respectively; both $P < 0.001$). It was determined that SP6 acupressure was effective in decreasing pain and duration of labor.[7]

Nasrin Asadi et al (2015) investigated the efficacy of LI-4 and SP-6 acupuncture technique in improvement of labor pain, decreasing the duration of labor and serum cortisol level in a single-blind sham-controlled randomized clinical trial. Our results revealed that there was no significant difference between case and control groups with respect to labor pain and serum cortisol level. Given the effect of cortisol on pain relief, our hypothesis is that lack of increasing cortisol is the main contributing factor related to lack of pain reduction. Interestingly, a significant

decrease in duration of labor was noted in acupuncture group. The decrease was noted specifically in duration of the active phase of labor.

Deepak et al (2013) concluded that acupressure is effective in decreasing intensity of labor pains and shortening the duration of first stage of labor. The study report revealed that statistically significant difference between the mean pain score during early and late active phase of labor and duration of first stage of labor between experimental and control groups

Aromatherapy

Abbaspoor Z, Mohammadkhani shahriLeila (2013) reported that lavender massage aromatherapy helps to decrease pain and duration of first and second stages of labor. It can decrease a variety of intrapartum adverse outcomes. This method can reduce the suffering of women in labor who may need to use oral or intravenous drug for relief pain, and it can also save the costs that is imposed on the health system to relief pain. The study also reported that aromatherapy is not associated with any side effects to the mother and baby.[8]

Stephen Barrett (2012) described that aromatherapy is not only helps to relieve symptom but also it treats the diseases caused by any microbial infections also. The main therapeutic action of essential oils is acting on the defense mechanisms of the body and strengthening the organs and their functions. The essential oils may not act directly in the body but its mechanism action takes place by strengthening the muscles and organs. The action of aromatherapy is improved by the natural therapies to have the ultimate aim of restore the vitality of the individual.

Smith C A (2011) reported that the pain during childbirth was very severe therefore they examined the effect of aromatherapy in reduction of pain during childbirth. The findings stated that aromatherapy is not only having the healing power with the use of essential oils but it also helps to enhance physical and psychological wellbeing of mothers. After receiving aromatherapy, the women were asked to rate their pain intensity level. Primigravida women reported a pain reduction after the intervention of aromatherapy. The study finally concluded that

aromatherapy was effective in reducing pain intensity during childbirth.

Pollard K.R., (2008) described the importance of aromatherapy in the health care settings and few busy maternity units. Aromatherapy was applied in the form of massage with the aims of reducing the use of invasive and expensive methods of pain management, and to improve the mother's positive experiences towards labor and childbirth. The findings of the study supported the hypothesis that the application of aromatherapy during childbirth reduces the need for invasive methods of pain relief and also it promotes the experience of mothers during childbirth positively. Majority of women reported that they need this therapy for their next childbirth also.

Burns E et al., (2007) conducted a randomized controlled trail on the effect of aromatherapy during labor and childbirth as an intervention that helps to improve perinatal and neonatal outcomes. 251 mothers were randomized to aromatherapy and 262 mothers were recruited for control group. This study reported that aromatherapy is effective in intrapartum care in reducing the adverse effect of childbirth; it also enhances the mother's wellbeing and promotes relaxation. The childbirth satisfaction is also reported positively.

Biofeedback

Barragan Loayza (2011) analyzed the effectiveness of the use of biofeedback in prenatal lessons for organizing pain throughout work. The tests described that there were no significant clues of a distinction between biofeedback and command assemblies in periods of assisted vaginal birth, caesarean part, augmentation of labor and the use of pharmacological pain relief. The outcomes of the encompassed trials displayed that the use of biofeedback was helps to decrease the agony in women during childbirth. Biofeedback therapy is not working with physiological function. But, it works with the psychological factors to reduce stress.

Hydrotherapy

Rebecca D Benefield et al., (2010) studied that effect of hydrotherapy on anxiety, pain, neuro endocrine responses such as level of vasopressin, and oxytocin

and contraction dynamics during labor. It was a pre-and post-test designs with repeated measures were used to examine the effects of hydrotherapy on the above stated parameters. The study revealed that decreased in pain, anxiety as well as neuro endocrine responses at 15 and 45 minutes. Finally, the study was concluded that hydrotherapy throughout labor affects neuro endocrine responses that after psycho physiological processes.[10]

Hypnosis

Abbasi M et al., (2009) described the effect of hypnosis on pain relief during labor and childbirth where 6 pregnant women were educated to use self-hypnosis for labor. Using Colizzi's procedure, the outcomes were analyzed and reported that hypnosis during labor produce relief and consolation, self-confidence, pleasure, be short of suffering labor pain, altering the feeling of pain into one of pressure, a decrease in fear of normal childbirth, lack of fatigue, and lack of anxiety. They experienced increased concentration on the uterus and cervical muscle, alternativeness of all the stages of labor, and having positive thoughts.[11]

Intradermal water blocks

Derry S et al., (2012) conducted a double blind, controlled study where they used sterile water injections for pain relief administered subcutaneously. Their study revealed that sterile water was valuable for low back or any other labor pain and moreover was professed to work for labor pain.[12]

Fogarty V (2008) conducted six randomized controlled trials in different countries such as Canada, Denmark, Iran, Sweden and Thailand. Their study report described that sterile water intradermal injections was powerful analgesic effect on women with low back pain in labor. It may be act as a placebo therapy even though mothers were felt more satisfaction after receiving the injection.

Lena Manrtensson et al., (2008) described that, sterile water injection during labor reduces low back pain and it provides comfort to the mother. But the midwives should get adequate practice about the sites of giving injections. The wrong method of using this technique may cause serious complication to the

mother. But it was a simple and cost-effective method of pain relief during childbirth.

Music therapy

Hosseini SE, Bagheri M, Honarparvaran N et al., (2013) investigated the effect of music therapy in progress of first stage of labor. This study was done with 30 primigravida women. It was a pre-and post-test design. Experimental group received relaxed music for a period of 30 minutes in the interval of 2hrs. VAS was used to read the pain score. The study findings proved that music was having high influence on pain perception among experimental group.

Leodoro J (2013) conducted a quasi-experimental study where fifty subjects were selected, grouped into two as study and control group. VAS as well as BRS scale were used to rate pain and behavioral response. The control group was treated with the standard routine clinical care whereas study group subjects were treated with as that of control group plus were exposed to music therapy for thirty minutes. The study results revealed that pain reduction was found in latent phase of first stage of labor.[14]

Liu YH, (2010) studied the effectiveness of music on pain perception and anxiety in first stage of labor. Total sixty primiparas mothers were selected and they likely to have a normal delivery. They were randomly allotted to either experimental group or normal control group. Routine care as well as music therapy was given to experimental group but control group received only routine care. Visual analogue scale was used for measurement of pain intensity along with that behavioral responses also recorded. Results discovered that the experimental group had significantly reduction in pain, anxiety and good behavioral responses control.

Reflexology

Dolatian M, A Hasanpour, H Alavi majd et al., (2011) conducted a randomized clinical trial study the effect of reflexology on parturient women who were at low risk pregnancy. Total 120 parturient women were selected and grouped into three 40 subjects in each. The first 40 subjects in group I received reflexology

for 40 minutes at the starting stage of active phase. Second group received an emotional support for 40 minutes at the same stage. Only routine clinical care offered for group 3 subjects during labor. VAS was used to find out pain severity. At all the 3 stages pain intensity was recorded and was found to be significantly less in group 1 where reflexology was applied. The result indicated that reflexology reduced the first, second and third stages duration of labor.[15]

Valiani M et al., (2010) reviewed the effect of reflexology on pain and outcomes of the labor. It was a quasi-experimental study, 44 primiparas mothers allotted in each group. The involvement of reflexology was studied at the active phase. They analysed the pain rating index(PRI), 4 times after the intrusion. The report showed that significant difference of PRI was found before and after the applied reflexology.

McNeill JA et al., (2006) conducted a study to assess the association between prenatal reflexology and perinatal birth outcomes. The participants were received reflexology from the antenatal period. The study findings suggested that reflexology was influenced on onset of labor, length of labor, use of pain medication and type of delivery.

Relaxation and Breathing

Divya D (2012) conducted an experimental study included sixty-two pregnant women to know the effect of slowly increase of muscle relaxation technique during labor for the reduction of pain. Both pain intensity and behavioral reactions were monitored by using a standard procedure and checklist. The study results explored that a significant difference in pain intensity and behavioral reactions between the two groups. The study also recommended that progressive muscle relaxation technique can use as pain relief technique during labor.

Kimber L et al., (2008) studied the effect of massage and music therapy in reduction of pain during labor. Both the group were received the special intervention along with relaxation techniques, one more group was possessed as control group were not receiving any special care unless the routine intra natal care. The study findings suggested that regular massage therapy along with relaxation

was more effective to provide power and to reduce pain during labor.

Touch and massage

Rubneide Barreto silva gallo et al., (2013) studied the effect of massage during labor on reduction of labor pain. 46 nullipara women with single fetus and spontaneous onset of labor were included in this study. The participants were received massage over lumber region for a period of 30 minutes. The main outcome measured in this study was labor pain perception. Secondary outcome was assessed to use of pain medications. After the completion of this study, it reported a significant difference in pain scores of experimental and control groups. The women from experimental group were more satisfied with the intervention given during first stage of labor.[16]

Zahra et al., (2012) conducted a study to assess the effect of ice massage and acupressure on severity of pain during labor. It was a quasi-experimental study with 90 nulliparous. The participants were divided into three groups to receive the interventions of ice massage, acupressure and one group was for placebo therapy. The treatment was given to each group and the outcome was measured before and after intervention. Statistical analysis showed there was a significant difference among three groups. Though ice massage group reported reduced pain intensity level than other two groups.

Taghinejad et al., (2010) conducted a study to compare the effect of music therapy and massage in reduction of labor pain. 50 mothers were participated in either group. Outcome was measured by using VAS, to identify the severity of labor pain. Study results should that, there was significant difference in pain score between massage therapy indicating more benefit in reducing labor pain than music therapy.

Transcutaneous electrical nerve stimulation

LF Ho. (2011) applied TENS as an option for reduction of labor pain during delivery. In his study, women who had participated TENS for pain reduction at phase of labor reported that no significant complications. His finding revealed that

38% women experienced pain relief with TENS alone and 87% women experienced natural delivery when compared with other groups. In the TENS group, also showed shorter the duration of first stage and second stage.

Dowswell T et al., (2009) conducted a randomized controlled trial where women received TENS during labor were compared with placebo devices. There was a less significant effect on pain relief with TENS users and non-user's groups but, TENS received at acupuncture points showed highly significant pain relief reported by them. Those who were used TENS, were willing to reuse in next labor. They finally concluded that TENS was used as a non-pharmacological pain relief method for the women during labor and delivery.[17]

Maternal movement and positioning

Simkins P and O'Hara (2008) evaluated the importance of positioning during childbirth. Study group was divided two group, the experimental group pregnant women were instructed to stay upright, it may be like sitting, standing, or walking during the first stage where as control group were instructed to remain in side lying or supine position. Such 6 trails, 3 trails reported that decreased pain in upright positions whereas 2 trails reported that no difference and 1 trail where women were put on to stay upright position during the first stage of labor and found increased pain.[13]

Birth companion

Janula and John Esther (2013) conducted a quasi-experimental study 40 primigravida mothers. Birth participation scale was used to check expectant father's attitude towards childbirth. Expectant father was instructed to given physical and emotional support to the mother while uterine contraction, whereas routine intra natal care was given to control group. Study reported that presence expectant father's given added positive experiences towards childbirth and also suggested that constant partner support was important for winning childbirth.

Lliadou M (2012) suggested that emotional, informational, physical support and advocacy were played an important role in labor. Health care givers should

motivate the family members to give adequate support to the mother physically and mentally throughout pregnancy and labor.

Campbell DA et al., (2006) conducted a study to evaluate the benefits of specially trained midwives in delivery suite. It was compared with other group and it did not get any special support during childbirth. 600 nullipara low risk mothers were recruited for the study. The choice of selecting birth companion was up to the participants. It may be their female friend or family member. The birth companion was trained for giving special care to the mother. The outcomes identified in the study were duration of delivery, mode of delivery, the use of anesthesia and Apgar score of new born. The study results stated that birth companion was more effective in reduction of length of labor, enhances fast cervical dilatation, reduces the use of pain medications and high APGAR score of new born even at 1 minutes.[9]

2.1.4 Heat therapy during labor

Taavoni S et al., (2016) conducted randomized control trial were randomly assigned to two interventions (birth ball and heat) and control groups. Pain score recorded by VAS. The mean pain severity score in the heat therapy group was less than that control group, in addition there were significantly differences between the pain scores in the birth ball group compared to control. Finally, concluded both heat therapy and birth ball can use an inexpensive complementary and low risk treatment for labor pain.[18]

Terre-Rull C et al., (2014) conducted a clinical trial woman were randomly assigned to three groups moist heat, dry heat, control group. Heat was applied in the perineum and then assessed the postpartum perineum and Apgar score of new born. Finally, concluded heat therapy to the perineum during labor did not significantly reduce perineal suturing after birth. However, better perineal results were observed with moist heat. Heat therapy does not alter neonatal outcomes measured by Apgar score.[26]

Lee SL et al., (2013) conducted randomized controlled trial were block randomly selected. Experimental group received warm shower bath in full body or lower back shower and control group in routine care. Labor pain and the birth

experience were assessed using the Visual Analogue Scale for pain(VASP) and the Labor Agentry Scale. Finally, concluded warm showers are a cost-effective, convenient, easy-to-deploy, nonpharmacological approach to pain reduction and have a more positive overall experience.[19]

Abdolahian S et al., (2014) conducted randomized controlled trial study were randomly assigned to heat therapy and control groups. Heat therapy applied to the sacrum and perineum in the active phase labor pain. Pain and satisfaction scores were measured by visual analogue scale. Measurements of satisfaction were accomplished after birth. Mean pain scores in the heat therapy group were significantly lower than the control group and the mean satisfaction in the heat therapy group was significantly higher than the control. Finally, concluded heat therapy, an inexpensive complementary treatment with low risk, can reduce the intensity of pain and increase mother's satisfaction.[20]

Fahami F et al., (2011) conducted a clinical trial, where sixty-four low risk, nulliparous women were participated. They were divided into two groups as heat therapy and normal control group. Experimental group received heat therapy along with routine cares where warm bag was used for heat application. Pain intensity and cervical dilation were determined by using different tools at first and second stage of labor. The study result revealed that heat therapy showed an addition beneficial effects and causes lower pain sensitization in labor. [21]

Rejane Marie Barbosa, Vasconcellos (2009) conducted a study to evaluate the effectiveness of warm compress strategies to relieve pain in parturient in labor. This is a before and after therapeutic intervention clinical trial performed at a public maternity in the city of natal, in the state of Rio Grande do Norte, Brazil, with 100 parturient applying warm compress. A visual analogue scale was used for data collection. A significant difference was observed in pain relief after using warm compress showing reduced pain as cervix dilation increased. It was concluded that the strategies were effective in reducing the intensity of pain in the studied parturient in labor.

Cluett (2009) conducted effectiveness of heat application in reducing labor pain. Twelve studies randomizing 3252 women were included in this review. Altogether 11 studies compared immersion versus no immersion (3052 women); eight compared immersion versus no immersion in the first stage of labor (2766 women); one study compared immersion versus no immersion in the second stage of labor (120 women) and two studies compared immersion versus no immersion in both the first and second stages of labor (166 women). One study compared early (<5 cm dilation) versus late (>=5 cm dilation) immersion during the first stage of labor (200 women). We have presented results separately for those studies comparing immersion at different stages during labor.[22]

Husna Bhanu (2008) conducted a quasi-experimental study (pre-test, post-test control group) on effectiveness of warm compress on lumbar and sacral region during first stage of labor among primi mothers. By using purposive sampling technique 60 primi mothers were selected. 30 of them in experimental group and 30 in control group. The two groups had usual care and support from health care professionals. The investigator provided warm compress for the experimental group. Data was collected by using observational check list. The study revealed the experimental group had reduction in pain and experienced comfort than the control group at $p<0.05$ level of significance. The study concluded that warm compress is one of the simple, effective non-invasive and cost-effective methods having no side effects on mother and infant.[23]

Hannah G. Dahlon, Carolie SE. Homer (2007) conducted a randomized controlled trial on women's experience and midwives' opinion on use of perineal warm packs in second stage of labor. Out of 717 primi women, 360 women were applied warm packs on perineum and 357 women received standard care. The findings stated that warm packs were highly acceptable to both women and midwives as a mean of relieving pain during the last second stage of labor. Almost the same number of women (79.7%) and midwives (80.4%) felt that warm packs will reduce pain during the birth. Both women and midwives were positive about using warm packs in the future. Majority of the women (85.7%)said that they would like to use perineal warm packs again for their next birth and about 86.6% of

women would like to recommend for their friends. Likewise, 91% of midwives were positive about using them in the future as a part of routine maternity care in second stage of labor. The study concluded that a warm pack on perineum in second stage of labor was highly acceptable and effective in helping to relieve perineal pain and increases comfort.[24]

Carsten Lenstrup, Anne Schantz (2007) concluded a prospective study where 88 women had warm tub bath for 30 minutes-2 hours during first stage of labor after a strict normal pregnancy. A control consisted of 72 women during pregnancy and labor, but did not want to take a warm tub bath during labor. Apart from the bath, the two groups followed the usual obstetric procedures of the department. The results have shown that cervical dilatation in bath group was 2.5 cms compared with 1.25 cms in control group. Mean pain score in bath group was higher before the bath and they experienced pain relief during and after bath which was not observed in control group.[25]

2.2 CONCEPTUAL FRAMEWORK

ADAPTED-KATHARINE KOLCABA'S COMFORT THEORY

A conceptual framework is an analytical tool with several variations and contexts. It is used to make conceptual distinctions and organize ideas. The conceptual framework makes research findings more meaningful and generalizable. Conceptual models help to stimulate research and the extension of knowledge by providing both direction and impetus.

The Conceptual framework is a theoretical structure of assumptions, principles and rules that holds together the ideas comprising the broad concept.

The study is based on **KOLCABA's COMFORT THEORY**, developed in the year **1990.** It is a middle range theory for health, practice, education and research. This theory has the potential to place comfort in the forefront of healthcare. According to the model, comfort is an immediate desirable outcome of nursing care.

Concepts and definitions of kolcaba's theory

Kolcaba described comfort as existing in three forms, relief, ease, and transcendence. Also, Kolcaba described four contexts in which patient comfort can occur; physical, psycho-spiritual, environmental and socio-cultural. The theory has three technical senses of comfort.

- **Relief** is provided when a specific need of a patient was met
- **Ease** is a state, where the patient is calm and contented
- **Transcendence** is when the patient went beyond the comfort need.

Comfort theory depends of health care needs, nursing interventions and intervening variables are the factors which are considered so that the goal of enhanced comfort of the patient can be achieved in all context of the human experience which are physical, psycho-spiritual, socio-cultural and environmental.

Major concepts of kolcaba's theory

Health care needs are those identified by the patient/family in a particular practice setting. In this study, it is assessed in context of human experience that is physical, psycho-spiritual, socio-cultural and environmental.

Intervening variables are those factors that are not likely to change over which providers have little control such as age, education, type of family, occupational status, work pattern, family monthly income, height, weight, type of marriage, marriage age, gestational age, fetal presentation and position.

Nursing interventions is a concept that has a strong association with nursing. Nurses traditionally provide comfort to patients and their families through interventions that can be called comfort measures. In this study, hot water bag applied on sacrum during first stage of labor (4cm -10cm) for 20 minutes with one-hour interval for the experimental group and the routine care for the control group.

Enhanced comfort is an immediate desirable outcome of nursing care, according to comfort theory.

Health seeking behaviors lead to utilization of health care facilities and services. In turn, this will help improve the health care system, helping more patients to become better sources.

Institutional Integrity is defined as the values, financial stability and wholeness of health care organizations at local, regional, state and national levels of the best policy.

Metaparadigms

Person

In this study, it refers to the primigravida mothers who were admitted in labor room with first stage of labor in both experimental and control group

Environment

In this study, it refers to the Labor ward

Nursing

Intentional assessment of comfort needs, the designing comfort measures to address those needs, and the reassessment of comfort levels after application of moist heat on labor during active phase of first stage.

Health

In this study health is considered to be optimal functioning, relief from pain or enhanced comfort as reported by the primigravida mothers who were in the first stage of labor.

CHAPTER III

RESEARCH METHODOLOGY

This chapter consists of research approach, research design, variables, setting, population, sample, sample size, sampling technique, criteria for selection of samples, development and description of the tool, content validity, reliability, pilot study, data collection procedure and data analysis.

3.1 Research Approach

Quantitative research approach

3.2 Research Design

Quasi experimental pre-and post-test control group design

GROUP	PRE-TEST	INTERVENTION	POST TEST
EXPERIMENTAL GROUP(O)	O 1	X	O 2
CONTROL GROUP(O)	O1	----	O 2

Table 3.1 shows the representation of research design

Key

O - Experimental

O 1 - Pretest of experimental group

O 2 - Post test of experimental group

X - Moist heat application

O - Control group

O 1 - Pre test of control group

O 2 - Post test of control group

3.3 Setting of the study

The study was conducted in labor ward at Institute of Obstetrics and Gynecology, Egmore, Chennai-08. The Institute was unveiled on 26th July 1844 to the public service. It is a 1075 bedded maternity hospital, tertiary care center and referral center. The hospital is renowned for its excellence in medical experts, nursing care and quality diagnostic service. All facilities are provided for conducting normal, high risk and instrumental deliveries. IOG has departments like neonatal intensive care unit, family planning services, oncology department, endocrinology, human milk bank and genetic department which are rendering comprehensive care for entire Tamilnadu and neighboring state like Andhra Pradesh also.

3.4 Duration of the Study:

Four weeks (From 20. 11.16 to 18.12.16)

3.5 Study population:

The study population consists of primigravida mothers during the first stage of labor who admitted in labor ward.

3.5.1Target Population:

Primigravida mothers with first stage of labor above 37 weeks with cervical dilatation 4 cm.

3.5.2 Accessible Population:

Primigravida mother with first stage of labor above 37 weeks with 4cm cervical dilatation. Who are available during the period of data collection.

3.6 Sample

Sample consists of primigravida mothers who were admitted in labor ward during the first stage of labor with fulfil the inclusive criteria.

3.7 Sample Size

The sample size was 60 primigravida mothers, out of which 30 of them were in experimental group and 30 of them were in control group.

3.8 Sampling Criterion

3.8.1 Inclusion Criteria

1. Primigravida mothers with above 37 weeks of gestation.
2. Primigravida mothers who were in the first stage of labour with cervical dilatation of 4cm.
3. Mothers who were willing to participate in the study.
4. Mothers who are able to understand Tamil and / or English.

3.8.2 Exclusion Criteria

1. Mothers who are in second and third stage of labor
2. Mothers with malpresentation and position
3. Mothers with high risk pregnancy
4. Mothers who are all multi gravida.

3.9 Sampling Technique

The sampling technique used for this study was non-probability convenient sampling technique. During the data collection period, approximately 3-5 mothers per day were admitted in the labor room. First two weeks selected for experimental group and the second two weeks selected for control group. The researcher visited the labor room and enquired labor room staff and verified with the admission register every day for new admission of primigravida mothers for delivery. Convenient sampling techniques were used to draw the samples, and primigravida mothers who fulfilled the inclusion criteria were included in this study. Totally 60 primigravida mothers were selected. Out of 60 primigravida mothers 30 of them were in experimental group and 30 of them in control group.

3.10 Research Variables

3.10.1 Independent Variable

Moist heat application

3.10.2 Dependent Variable

Labor pain

3.11 Development and description of the Tool

3.11.1 Development of the Tool

The tool was developed by the researcher on the basis of objectives of the study. After extensive review of literature, internet search and expert opinion helped the investigator to select the suitable scale to assess the level of labor pain among primigravida mothers. The tool has three sections, Section A, B and C.

3.11.2 Description of the tool

The structure interview schedule consists of three sections.

Section A consists of demographic variables such as age, educational status, work pattern, type of family, religion, area of living, monthly income, occupation, weight and height of the mothers.

Section B consists of Obstetrical variables such as age at menarche, age at marriage, LMP, EDD, gestational age, Fetal presentation and position.

Section C Numerical Pain Assessment Scale was used to assess the pre-test and post-test level of pain during first stage of labor among primigravida mothers. Numerical pain assessment scale is a straight line which has points ranging from o to 10.

3.11.3 Scoring procedure

NATURE AND DESCRIPTION OF PAIN	SCORE
No pain	0
Mild pain	1-3
Moderate pain	4-6
Severe pain	7-10

3.12 Content Validity

Validity of the tool was assessed using content validity. Content validity was determined by experts from Nursing and Medical. Numerical pain assessment scale was used for assessing the effectiveness of Moist Heat application over the sacrum on labor pain during the first stage of labor among the primigravida mothers. The modifications and suggestions of the experts were incorporated in the final preparation of tool.

3.13 Protection of Human Subjects

Following submission of the study proposals, the permission for conducting the study was obtained from the Institutional Ethics Committee and Director of Institute of Obstetrics and Gynecology. The investigator followed the ethical guidelines which were issued by the Institutional ethics committee. Confidentiality of the results and anonymity will be assured to the subjects.

3.14 Reliability

Reliability of the tool was assessed by using inter-rater reliability method and its correlation coefficient r –value was 0.89 (pain). This correlation coefficient is very high and it is good tool for evaluate the effectiveness of Moist heat application during first stage of labor.

3.15 Pilot Study

The pilot study was conducted to check the clarity of items, reliability, feasibility and practicability of the research design. After obtaining formal permission from the Hospital authorities, the pilot study was conducted in labor room, Institute of Obstetrics and Gynecology, Egmore, Chennai-08, for a period of 1 week. The concerned labor room in charge staff and medical officer were also informed. The sample size was ten and they were selected by using non- probability convenient sampling technique, in that five of them were allotted to experimental and five of them to control group.

Rapport was established with the mothers and a brief introduction about the study was given. Consent was obtained from each mother and reassurance was

provided that the collected data would be kept confidential. The data related to demographic variables were collected from the interview method. Applied hot water bag for experimental group 20 minutes with interval of one-hour. No intervention was given for control group. The pre and post-test level of pain assessed by the Numerical pain assessment scale. The study was found to be feasible and hence the same procedure was decided to be followed to the main study. There was no modification made in the tool after pilot study. The samples selected for the pilot study were not included for the main study.

3.16 Data Collection Procedure

A The data collection period was 4 weeks from 20.11.16 to 18.12.16. The researcher got permission from Principal and Ethical committee and HOD of Obstetrics and Gynecological Nursing, College of Nursing, Madras Medical College, Chennai-03. Before the data collection a formal permission was obtained from the Director, Institute of Obstetrics and Gynecology, Egmore, Chennai-08 for main study.

Primigravida mothers who were admitted in labor room, based on the inclusion criteria were selected by non-probability convenient sampling technique. All respondents were carefully informed about the purpose of the study and how the privacy was guarded. Ensured confidentiality of the study result. The freedom was given to the client to leave the study at her will without assigning any reason. No routine care was altered or withheld. The first 30 primigravida mothers were assigned for experimental group for the first two weeks and the following another 30 for control group were assigned in the next two weeks. The investigator first introduced herself and obtained written consent from the mothers. After proper explanation, the pre-intervention pain levels are measured using a Numerical pain assessment scale for both the experimental and control groups. Moist heat application (Hot water Bag) was given for 20 minutes on sacrum during the first stage of labor cervical dilatation begins 4cm with interval of one hour for experimental group. Post intervention measurements are taken after the delivery.

Whereas control group the post-test was recorded according to the experimental group and the routine care was given.

3.17 Intervention protocol

	Experimental group	Control group
Place	Labor ward at IOG	Labor ward at IOG
Dose	Hot water bag application on sacrum temp 104- 110^0 F	Routine care
Duration	20 minutes	-
Frequency	One-hour interval	-
Time	-	-
Administrator	Investigator	Self
Recipient	Primigravida mother with first stage of labor pain	Primigravida mothers with first stage of labor pain

3.18 Data Entry and Analysis

After the data collection 4 to 5 data were entered in the coding sheet of SPSS version. At the end of data collection, the collected data was arranged and tabulated to represent the findings of the study.

Both descriptive and inferential statistics were used for the study. The data sheet was prepared by the investigator in Microsoft excel. Analysis and interpretation were carried out with descriptive statistics as frequency distribution, percentage, mean, standard deviation and inferential statistics like student paired t-test, Extended McNemar's test, Chi square test, and One-way ANOVA F-test.

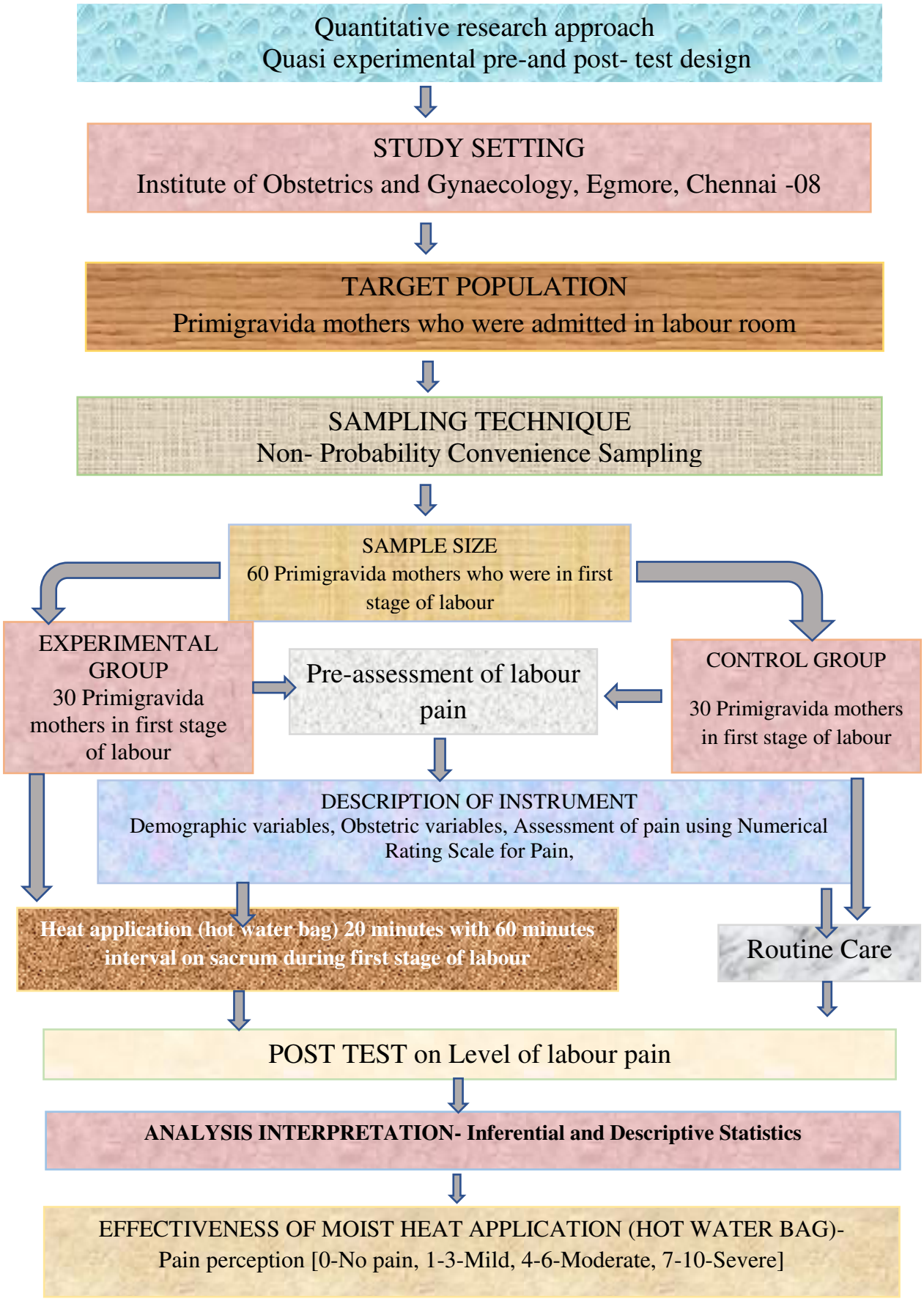

Fig. 3.1 SCHEMATIC REPRESENTATION OF RESEARCH DESIGN

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with analysis and interpretation of the data collected from 60 primigravida mothers at Institute of Obstetrics and Gynecology, Chennai. The data collected was organized, tabulated and analyzed according to the objectives. The findings are based on the descriptive and inferential statistical analysis.

ORGANISATION OF THE DATA

SECTION A: Description of demographic variables of primigravida mothers in the Experimental and control group.

SECTION B: Assessment of pre-test and post-test level of labor pain among primigravida Mothers in the experimental and control group.

SECTION C: Effectiveness of heat application on labor pain among primigravida mothers in the experimental group

SECTION D: Comparison of pre-test and post-test level of labor pain among primigravida Mothers in the experimental and control group

SECTION E: Association of post-test level of labor pain among primigravida mothers with their selected demographic variables in the experimental and control group.

SECTION A: DESCRIPTION OF DEMOGRAPHIC VARIABLES OF PRIMIGRAVIDA MOTHERS IN THE EXPERIMENTAL AND CONTROL GROUP.

Table 4.2: Distribution of demographic variables of study participants

Demographic variables		Group			
		Experiment (n=30)		Control (n=30)	
		N	%	n	%
Age	15 -20 years	5	16.7%	10	33.3%
	21 -25 years	18	60.0%	15	50.0%
	26 -30 years	7	23.3%	5	16.7%
Education status	Illiterate	1	3.3%	1	3.3%
	Primary education	8	26.7%	6	20.0%
	Secondary education	15	50.0%	16	53.4%
	Graduate and above	6	20.0%	7	23.3%
Place of living	Urban	7	23.3%	4	13.3%
	Rural	21	70.0%	24	80.0%
	Sub urban	2	6.7%	2	6.7%
Religion	Hindu	25	83.3%	25	83.3%
	Christian	3	10.0%	4	13.4%
	Muslim	2	6.7%	1	3.3%
Family type	Nuclear family	16	53.3%	20	66.7%
	Joint family	14	46.7%	10	33.3%
Occupation status	Unemployed	27	90.0%	28	93.3%
	Employed	3	10.0%	2	6.7%
Work pattern	Sedentary	13	43.3%	15	50.0%
	Moderate	15	50.0%	13	43.3%
	Heavy	2	6.7%	2	6.7%
Monthly income	Rs. 1000-3000	2	6.7%	1	3.3%
	Rs. 3001 - 6000	3	10.0%	6	20.0%
	Rs. 6001 - 10000	12	40.0%	11	36.7%
	> Rs.10000	13	43.3%	12	40.0%
Height	< 150 cm	5	16.7%	8	26.7%
	151 - 160 cm	19	63.3%	14	46.6%
	161 - 170 cm	6	20.0%	8	26.7%
Weight	< 50 kg	4	13.4%	6	20.0%
	51 -60 kg	10	33.3%	11	36.6%
	61 -70 kg	10	33.3%	8	26.7%
	> 70 kg	6	20.0%	5	16.7%

Table 4.2 shows that in the experimental group, 18 (60%) were in the age group of 21-25 years, 15 (50%) had secondary school education, 16 (53.3%) belonged to nuclear family, 25 (83.3%) were Hindus, 27 (90%) were house wives(unemployed), 13 (43.3%) > Rs. 10,000 had a family monthly income, 21 (70%) living in rural area, 15 (50%) had moderate work pattern, 19 (63.3%) had height in 151 – 160cm, 10(33.3%) had weight in 51 -60 kg.

Whereas in the control group, 15 (50%) were in the age group of 21-25 years, 16 (53.4%) had secondary school education, 20 (66.7%) belonged to nuclear family, 25 (83.3%) were Hindus, 28 (93.3%) were house wives(unemployed), 12 (40%) > Rs. 10,000 had a family monthly income, 24 (80%) living in rural area, 15 (50%) had sedentary work pattern, 14 (46.6%) had height in 151 – 160cm, 11 (36.6%) had weight in 51 -60 kg.

Table 4.3: Distribution of Obstetric variables of study participants

Obstetrical variables		group			
		Experiment		Control	
		n	%	n	%
Age at menarche	11 -12 years	5	16.7%	3	10.0%
	13 -14 years	21	70.0%	23	76.7%
	15 -16 years	4	13.3%	4	13.3%
Age at marriage	<20 years	10	33.3%	13	43.3%
	21 -25 years	17	56.7%	15	50.0%
	> 25 years	3	10.0%	2	6.7%
Type of marriage	Consanguineous	5	16.7%	7	23.3%
	Non-Consanguineous	25	83.3%	23	76.7%
Gestational age	37 weeks	5	16.7%	4	13.3%
	38 weeks	5	16.7%	9	30.0%
	39 weeks	14	46.6%	13	43.4%
	40 weeks	6	20.0%	4	13.3%
Position	LOA	26	86.7%	24	80.0%
	ROA	4	13.3%	6	20.0%
Present	CEPHALIC	30	100.0%	30	100.0%

Table 4.3 shows that in the experimental group 21 (70%) attained menarche at the age of 13-14years, 17 (56.7%) were married between the age of 21-25 years, 25 (83.3%) had, non-consanguineous type of marriage, 14 (46.6%) had the gestational age of 39 weeks, 26 (86.7%) had left occipito posterior position, 30 (100%) had cephalic presentation.

Whereas in the control group 23 (76.7%) attained menarche at the age of 13-14years, 15 (50%) were married between the age of 21-25 years, 23 (76.7%) had, non-consanguineous type of marriage, 13 (463.4%) had the gestational age of 39 weeks, 24 (80%) had left occipito posterior position, 30 (100%) had cephalic presentation.

SECTION B: ASSESSMENT OF PRETEST AND POST TEST LEVEL OF LABOUR PAIN AMONG PRIMIGRAVIDA MOTHERS IN THE EXPERIMENTAL AND CONTROL GROUP

Table 4.4: Distribution of pretest level of labour pain perception of study participants.

Level of pain	Group			
	Experiment		Control	
	No. of mothers	%	No. of mothers	%
No pain	0	0.0%	0	0.0%
Mild pain	0	0.0%	0	0.0%
Moderate pain	0	0.0%	0	0.0%
Severe pain	30	100.0%	30	100.0%
Total	30	100%	30	100%

Table 4.4 shows that in the experimental group, all the primigravida 30 (100%) had severe labor pain in the pretest.

Whereas in the control group, all the primigravida mothers 30 (100%) had severe pain in the pre-test.

In both the groups, 100% of the mothers are having severe pain score. There is no statistically significant difference between experiment and control. It was confirmed using chi square test.

Table 4. 5: Pretest mean pain score

	No. of mothers	**Pain score Mean ± SD**	**Mean Difference**	**Student's independent t-test**
Experiment	30	9.20± 0.71	0.13	t=0.60 P=0.54 DF =59 significant
Control	30	9.07± 0.98		

DF= Degrees of Freedom *** very high significant at P≤0.001

Table 4.5 shows the pre-test mean pain score between experiment and control group.

Considering overall pain score, in pretest, mothers are having 9.20 score where as in control group it is 9.07 score, so the difference is 0.13 pain score. The difference between experiment and control group pain score is small and it is statistically not significant. Differences between pretest and posttest score was analyzed using students independent t-test.

Table 4.6: Distribution of post-test level of labor pain perception of study participants

Level of pain	Group				Chi square test
	Experiment		Control		
	No. of mothers	%	No. of mothers	%	
No pain	0	0.0%	0	0.0%	$\chi 2=16.48$ P=0.001*** DF=1 S
Mild pain	0	0.0%	0	0.0%	
Moderate pain	18	60.0%	3	10.0%	
Severe pain	12	40.0%	27	90.0%	
Total	30	100%	30	100%	

Table 4.6 shows the post-test level of pain score during first stage of labor among primi gravida mothers in experimental group and control group. In experimental group 18 (60.0%) had moderate level of pain score, 12 (40%) had severe level of pain. In control group 3 (10%) had moderate level of pain, 27 (90%) had severe level of pain score. None of them had no pain and mild pain both in experimental and control group.

Table 4.7: Post-test mean pain score

	No. of mothers	Pain score Mean ± SD	Mean Difference	Student's independent t-test
Experiment	30	6.20± 0.99	2.50	t=8.87 P=0.001*** DF =59 significant
Control	30	8.70± 1.17		

DF= Degrees of Freedom *** very high significant at P≤0.001

Table 4.7 shows the post-test mean pain score between experiment and control group.

Considering overall pain score, in posttest, mothers are having 6.20 score where as in control group it is 8.70 score, so the difference is 2.50 pain score. The difference between experiment and control group pain score is large and it is statistically significant. Differences between pretest and posttest score was analyzed using students independent t-test.

SECTION C: EFFECTIVENESS OF MOIST HEAT APPLICATION ON LABOUR PAIN AMONG PRIMIGRAVIDA MOTHERS IN THE EXPERIMENTAL GROUP

Table 4.8: Percentage of pain reduction score

		Max score	***coping score*** **Mean ± SD**	**Mean Difference in pain score with 95% Confidence interval**	**Percentage of pain reduction score with 95% Confidence interval**
Experiment	Pretest	10	9.20± 0.71	3.00 (2.55 -3.45)	30.0%(26.0% – 35.0%)
	Posttest	10	6.20± 0.99		
Control	Pretest	10	9.07± 0.98	0.37(-0.22 -0.95)	3.7%(-2.2% –9.5%)
	Posttest	10	8.70± 1.17		

Table 4.8 shows the effectiveness of the study. On an average, mothers are reduced 30.0% of pain score after administration of moist heat application on sacrum region during first stage of labour among primigravida mothers in experimental group. Differences between pre-test and post-test score was analysed using mean difference with 95% confidence interval and proportion with 95% Confidence interval. This 30.0% pain reduction shows the **effectiveness** of moist heat application.

SECTION D: COMPARISON OF PRE-TEST AND POST TEST LEVEL OF LABOUR PAIN SCORE AMONG PRIMIGRAVIDA MOTHERS BETWEEN THE EXPERIMENTAL AND CONTROL GROUP

Table 4.9: Pretest and posttest level of pain score

Group	Level of pain	TEST				Extended McNemar's test
		Pretest		Posttest		
		n	%	n	%	
Experiment	No. pain	0	0.0%	0	0.0%	**χ2=18.00 P=0.001*** DF= 1 significant**
	Mild pain	0	0.0%	0	0.0%	
	Moderate pain	0	0.0%	18	60.0%	
	Severe pain	30	100.0%	12	40.0%	
	TOTAL	30	100%	30	100%	
Control	No. pain	0	0.0%	0	0.0%	χ2=3.00 P=0.08 DF= 1 not significant
	Mild pain	0	0.0%	0	0.0%	
	Moderate pain	0	0.0%	3	10.0%	
	Severe pain	30	100.0%	27	90.0%	
	TOTAL	30	100%	30	100%	

DF= Degrees of Freedom *** very high significant at P≤0.001 Not significant P>0.05

Table 4.9 compares the pre-test and post-test level of pain score before and after intervention.

In pretest, all the mothers (100%) in experimental group had severe level of pain score, none of them had no pain, mild pain and moderate level of pain score. In posttest, 60% of the mothers had moderate level of pain score and 40% of them had severe level of pain score, none of them had no pain, mild pain level of pain score. Statistically, there is a significant difference between pre-test and post-test level of pain score. It was confirmed using extended McNemar's test

In pretest, all the mothers (100%) in control group had severe level of pain score, none of them had no pain, mild pain and moderate level of pain score. In posttest, 10% of the mothers had moderate level of pain score and 90% of them had severe level of pain score, none of them had no pain, mild pain level of pain score. Statistically there is a significant difference between pre-test and post-test level of pain score. It was confirmed using extended McNemar's test

Table 4.10: Comparison of pretest and posttest pain score

	No. of mothers	Pretest Mean ± SD	Posttest Mean ± SD	Mean Difference	Student's paired t-test
Experiment	30	9.20± 0.71	6.20± 0.99	3.00	**t=13.65 P=0.001*** DF =29 significant**
Control	30	9.07± 0.98	8.70± 1.17	0.37	t=1.28 P=0.21 DF =29 not significant

DF= Degrees of Freedom P> 0.05 not significant *** very high significant at P≤0.001

Table 4.10 shows the comparison of overall pre-test and post-test pain score

Considering experiment group in pretest, mothers had 9.20 score where as in post-test they had 6.20 score, so the difference is 3.00. The difference between pretest and posttest score is large and it is statistically significant. Differences between pretest and post-test score was analyzed using students paired t-test.

Considering control group in pretest, mothers had 9.07 score where as in post-test they had 8.70 score, so the difference is 0.37. The difference between pretest and posttest score is small and it is not statistically significant. Differences between pretest and post-test score was analyzed using students paired t-test.

SECTION E: ASSOCIATION OF POST TEST LEVEL OF LABOUR PAIN AMONG PRIMIGRAVIDA MOTHERS WITH THEIR SELECTED DEMOGRAPHIC VARIABLES IN THE EXPERIMENTAL AND CONTROL GROUP.

Table 4.11: Association between mothers demographical variables and pre-test level of pain perception score in experiment group

Demographic variables		Pretest level of pain score						Total	Chi square test
		Mild pain		Moderate		Severe pain			
		n	%	n	%	n	%		
Age	15 -20 years	0	0.0%	0	0.0%	5	100.0%	5	$\chi 2$=0.00
	21 -25 years	0	0.0%	0	0.0%	18	100.0%	18	P=1.00
	26 -30 years	0	0.0%	0	0.0%	5	100.0%	7	DF= 2 NS
Education status	Illiterate	0	0.0%	0	0.0%	1	100.0%	1	$\chi 2$=0.00 P=1.00 DF= 3 NS
	Primary education	0	0.0%	0	0.0%	6	100.0%	8	
	Secondary education	0	0.0%	0	0.0%	15	100.0%	15	
	Graduate and above	0	0.0%	0	0.0%	6	100.0%	6	
Place of living	Urban	0	0.0%	0	0.0%	6	100.0%	7	$\chi 2$=0.00
	Rural	0	0.0%	0	0.0%	20	100.0%	21	P=1.00
	Sub urban	0	0.0%	0	0.0%	2	100.0%	2	DF= 2 NS
Religion	Hindu	0	0.0%	0	0.0%	23	100.0%	25	$\chi 2$=0.00
	Christian	0	0.0%	0	0.0%	3	100.0%	3	P=1.00
	Muslim	0	0.0%	0	0.0%	2	100.0%	2	DF= 2 NS
Family type	Nuclear family	0	0.0%	0	0.0%	14	100.0%	16	$\chi 2$=0.00
	Joint family	0	0.0%	0	0.0%	14	100.0%	14	P=1.00 DF= 1 NS
Occupation status	Unemployed	0	0.0%	0	0.0%	25	100.0%	27	$\chi 2$=0.00
	Employed	0	0.0%	0	0.0%	3	100.0%	3	P=1.00 DF= 1 NS
work pattern	Sedentary	0	0.0%	0	0.0%	13	100.0%	13	$\chi 2$=0.00
	Moderate	0	0.0%	0	0.0%	13	100.0%	15	P=1.00
	Heavy	0	0.0%	0	0.0%	2	100.0%	2	DF= 2 NS
Monthly income	Rs. 1000- 3000	0	0.0%	0	0.0%	1	100.0%	2	$\chi 2$=0.00 P=1.00 DF= 3 NS
	Rs. 3001 - 6000	0	0.0%	0	0.0%	3	100.0%	3	
	Rs. 6001 - 10000	0	0.0%	0	0.0%	11	100.0%	12	
	> Rs.10000	0	0.0%	0	0.0%	13	100.0%	13	
Height	< 150 cm	0	0.0%	0	0.0%	5	100.0%	5	$\chi 2$=0.00
	151 - 160 cm	0	0.0%	0	0.0%	18	100.0%	19	P=1.00
	161 - 170 cm	0	0.0%	0	0.0%	5	100.0%	6	DF= 2 NS
Weight	< 50 kg	0	0.0%	0	0.0%	4	100.0%	4	$\chi 2$=0.00 P=1.00 DF= 3 NS
	51 -60 kg	0	0.0%	0	0.0%	10	100.0%	10	
	61 -70 kg	0	0.0%	0	0.0%	8	100.0%	10	
	> 70 kg	0	0.0%	0	0.0%	6	100.0%	6	

Age at menarche	11 -12 years	0	0.0%	0	0.0%	4	100.0%	5	$\chi 2$=0.00
	13 -14 years	0	0.0%	0	0.0%	21	100.0%	21	P=1.00
	15 -16 years	0	0.0%	0	0.0%	3	100.0%	4	DF= 2 NS
Age at marriage	<20 years	0	0.0%	0	0.0%	10	100.0%	10	$\chi 2$=0.00
	21 -25 years	0	0.0%	0	0.0%	15	100.0%	17	P=1.00
	> 25 years	0	0.0%	0	0.0%	3	100.0%	3	DF= 2 NS
Type of marriage	Consanguineous	0	0.0%	0	0.0%	4	100.0%	5	$\chi 2$=0.00
	Non Consanguineous	0	0.0%	0	0.0%	24	100.0%	25	P=1.00 DF= 1 NS
Gestational age	37 weeks	0	0.0%	0	0.0%	5	100.0%	5	$\chi 2$=0.00
	38 weeks	0	0.0%	0	0.0%	4	100.0%	5	P=1.00
	39 weeks	0	0.0%	0	0.0%	13	100.0%	14	DF= 3 NS
	40 weeks	0	0.0%	0	0.0%	6	100.0%	6	
Position	LOA	0	0.0%	0	0.0%	25	100.0%	26	$\chi 2$=0.00
	ROA	0	0.0%	0	0.0%	3	100.0%	4	P=1.00 DF= 1 NS
Present	CEPHALIC	0	0.0%	0	0.0%	28	100.0%	30	$\chi 2$=0.00 P=1.00 DF= 1 NS

DF= Degrees of Freedom Not significant P> 0.05 NS= Not significant

Table 4.11 shows the association between mothers demographic variables with pretest level of pain perception score in experimental group. None of the demographic variables are significantly associated with their pretest level of pain score. It was confirmed using chi square test.

Table 4.12: Association between mothers demographic variables and pre-test level of pain score in control group

Demographic variables		Pretest level of pain score						Total	Chi square test
		Mild pain		Moderate		Severe pain			
		n	%	n	%	n	%		
Age	15 -20 years	0	0.0%	0	0.0%	10	100.0%	10	$\chi 2$=0.00 P=1.00 DF= 2 NS
	21 -25 years	0	0.0%	0	0.0%	15	100.0%	15	
	26 -30 years	0	0.0%	0	0.0%	5	100.0%	5	
Education status	Illiterate	0	0.0%	0	0.0%	1	100.0%	1	$\chi 2$=0.00 P=1.00 DF= 3 NS
	Primary education	0	0.0%	0	0.0%	6	100.0%	6	
	Secondary education	0	0.0%	0	0.0%	16	100.0%	16	
	Graduate and above	0	0.0%	0	0.0%	7	100.0%	7	
Place of living	Urban	0	0.0%	0	0.0%	4	100.0%	4	$\chi 2$=0.00 P=1.00 DF= 2 NS
	Rural	0	0.0%	0	0.0%	24	100.0%	24	
	Sub urban	0	0.0%	0	0.0%	2	100.0%	2	
Religion	Hindu	0	0.0%	0	0.0%	25	100.0%	25	$\chi 2$=0.00 P=1.00 DF= 2 NS
	Christian	0	0.0%	0	0.0%	4	100.0%	4	
	Muslim	0	0.0%	0	0.0%	1	100.0%	1	
Family type	Nuclear family	0	0.0%	0	0.0%	20	100.0%	20	$\chi 2$=0.00 P=1.00 DF= 1 NS
	Joint family	0	0.0%	0	0.0%	10	100.0%	10	
Occupation status	Unemployed	0	0.0%	0	0.0%	28	100.0%	28	$\chi 2$=0.00 P=1.00 DF= 1 NS
	Employed	0	0.0%	0	0.0%	2	100.0%	2	
work pattern	Sedentary	0	0.0%	0	0.0%	15	100.0%	15	$\chi 2$=0.00 P=1.00 DF= 2 NS
	Moderate	0	0.0%	0	0.0%	13	100.0%	13	
	Heavy	0	0.0%	0	0.0%	2	100.0%	2	
Monthly income	Rs. 1000- 3000	0	0.0%	0	0.0%	1	100.0%	1	$\chi 2$=0.00 P=1.00 DF= 3 NS
	Rs. 3001 - 6000	0	0.0%	0	0.0%	6	100.0%	6	
	Rs. 6001 - 10000	0	0.0%	0	0.0%	11	100.0%	11	
	> Rs.10000	0	0.0%	0	0.0%	12	100.0%	12	
Height	< 150 cm	0	0.0%	0	0.0%	8	100.0%	8	$\chi 2$=0.00 P=1.00 DF= 2 NS
	151 - 160 cm	0	0.0%	0	0.0%	14	100.0%	14	
	161 - 170 cm	0	0.0%	0	0.0%	8	100.0%	8	
Weight	< 50 kg	0	0.0%	0	0.0%	6	100.0%	6	$\chi 2$=0.00 P=1.00 DF= 3 NS
	51 -60 kg	0	0.0%	0	0.0%	11	100.0%	11	
	61 -70 kg	0	0.0%	0	0.0%	8	100.0%	8	
	> 70 kg	0	0.0%	0	0.0%	5	100.0%	5	

Age at menarche	11 -12 years	0	0.0%	0	0.0%	3	100.0%	3	$\chi 2$=0.00 P=1.00 DF= 2 NS
	13 -14 years	0	0.0%	0	0.0%	23	100.0%	23	
	15 -16 years	0	0.0%	0	0.0%	4	100.0%	4	
Age at marriage	<20 years	0	0.0%	0	0.0%	13	100.0%	13	$\chi 2$=0.00 P=1.00 DF= 2 NS
	21 -25 years	0	0.0%	0	0.0%	15	100.0%	15	
	> 25 years	0	0.0%	0	0.0%	2	100.0%	2	
Type of marriage	Consanguineous	0	0.0%	0	0.0%	7	100.0%	7	$\chi 2$=0.00 P=1.00 DF= 1 NS
	Non Consanguineous	0	0.0%	0	0.0%	23	100.0%	23	
Gestational age	37 weeks	0	0.0%	0	0.0%	4	100.0%	4	$\chi 2$=0.00 P=1.00 DF= 3 NS
	38 weeks	0	0.0%	0	0.0%	9	100.0%	9	
	39 weeks	0	0.0%	0	0.0%	13	100.0%	13	
	40 weeks	0	0.0%	0	0.0%	4	100.0%	4	
Position	LOA	0	0.0%	0	0.0%	24	100.0%	24	$\chi 2$=0.00 P=1.00 DF= 1 NS
	ROA	0	0.0%	0	0.0%	6	100.0%	6	
Present	CEPHALIC	0	0.0%	0	0.0%	30	100.0%	30	$\chi 2$=0.00 P=1.00 DF= 1 NS

DF= Degrees of Freedom Not significant P> 0.05 NS= Not significant

Table 4.12 shows the association between mothers demographic variables with pretest level of pain perception in control group. None of the demographic variables are significantly associated with their pretest level of pain score. It was confirmed using chi square test.

Table 4.13: Association between mothers demographic variables and post-test level of pain perception score in experimental group

Demographic variables		Posttest level of pain score						Total	Chi square test
		Mild		Moderate		Severe			
		n	%	n	%	n	%		
Age	15 -20 years	0	0.0%	1	20.0%	4	80.0%	5	**$\chi 2$=8.14 P=0.02* DF= 2 S**
	21 -25 years	0	0.0%	10	55.6%	8	44.4%	18	
	26 -30 years	0	0.0%	7	100.0%	0	0.0%	7	
Education status	Illiterate	0	0.0%	0	0.0%	1	100.0%	1	**$\chi 2$=8.05 P=0.05* DF= 3 S**
	Primary education	0	0.0%	2	25.0%	6	75.0%	8	
	Secondary education	0	0.0%	11	73.3%	4	26.7%	15	
	Graduate and above	0	0.0%	5	83.3%	1	16.7%	6	
Place of living	Urban	0	0.0%	2	28.5%	5	71.5%	7	**$\chi 2$=8.17 P=0.02* DF= 2 S**
	Rural	0	0.0%	16	76.2%	5	23.8%	21	
	Sub urban	0	0.0%	0	0.0%	2	100.0%	2	
Religion	Hindu	0	0.0%	17	68.0%	8	32.0%	25	$\chi 2$=5.27 P=0.05 DF= 2 NS
	Christian	0	0.0%			3	100.0%	3	
	Muslim	0	0.0%	1	50.0%	1	50.0%	2	
Family type	Nuclear family	0	0.0%	10	62.5%	6	37.5%	16	$\chi 2$=0.09 P=0.75 DF= 1 NS
	Joint family	0	0.0%	8	57.1%	6	42.9%	14	
Occupation status	Unemployed	0	0.0%	17	63.0%	10	37.0%	27	$\chi 2$=0.98 P=0.32 DF= 1 NS
	Employed	0	0.0%	1	33.3%	2	66.7%	3	
work pattern	Sedentary	0	0.0%	9	69.2%	4	30.8%	13	$\chi 2$=0.82 P=0.66 DF= 2 NS
	Moderate	0	0.0%	8	53.3%	7	46.7%	15	
	Heavy	0	0.0%	1	50.0%	1	50.0%	2	
Monthly income	Rs. 1000- 3000	0	0.0%	2	100.0%			2	$\chi 2$=1.60 P=0.65 DF= 3 NS
	Rs. 3001 - 6000	0	0.0%	2	66.7%	1	33.3%	3	
	Rs. 6001 - 10000	0	0.0%	7	58.3%	5	41.7%	12	
	> Rs.10000	0	0.0%	7	53.8%	6	46.2%	13	
Height	< 150 cm	0	0.0%	4	80.0%	1	20.0%	5	$\chi 2$=1.37 P=0.50 DF= 2 NS
	151 - 160 cm	0	0.0%	10	52.6%	9	47.4%	19	
	161 - 170 cm	0	0.0%	4	66.7%	2	33.3%	6	
Weight	< 50 kg	0	0.0%	4	100.0%			4	$\chi 2$=4.44 P=0.21 DF= 3 NS
	51 -60 kg	0	0.0%	4	40.0%	6	60.0%	10	
	61 -70 kg	0	0.0%	6	60.0%	4	40.0%	10	
	> 70 kg	0	0.0%	4	66.7%	2	33.3%	6	

Age at menarche	11 -12 years	0	0.0%	4	80.0%	1	20.0%	5	$\chi 2$=1.07 P=0.59 DF= 2 NS
	13 -14 years	0	0.0%	12	57.1%	9	42.9%	21	
	15 -16 years	0	0.0%	2	50.0%	2	50.0%	4	
Age at marriage	<20 years	0	0.0%	6	60.0%	4	40.0%	10	$\chi 2$=0.06 P=0.96 DF= 2 NS
	21 -25 years	0	0.0%	10	58.8%	7	41.2%	17	
	> 25 years	0	0.0%	2	66.7%	1	33.3%	3	
Type of marriage	Consanguineous	0	0.0%	1	20.0%	4	80.0%	5	**$\chi 2$=4.00 P=0.05* DF= 1 S**
	Non Consanguineous	0	0.0%	17	68.0%	8	32.0%	25	
Gestational age	37 weeks	0	0.0%	1	20.0%	4	80.0%	5	**$\chi 2$=10.63P=0.02 * DF= 3 S**
	38 weeks	0	0.0%	1	20.0%	4	80.0%	5	
	39 weeks	0	0.0%	12	85.7%	2	14.3%	14	
	40 weeks	0	0.0%	4	66.7%	2	33.3%	6	
Position	LOA	0	0.0%	16	61.5%	10	38.5%	26	$\chi 2$=0.19 P=0.66 DF= 1 NS
	ROA	0	0.0%	2	50.0%	2	50.0%	4	
Present	CEPHALIC	0	0.0%	18	60.0%	12	40.0%	30	$\chi 2$=0.00 P=1.00 DF= 1 NS

DF= Degrees of Freedom Not significant P> 0.05 NS= Not significant

* significant at P≤0.05 ** high significant at P≤0.01

Table 4.13 shows the association between mothers demographic variables with posttest level of pain perception score in experimental group. Elders, rural, more educated and Non Consanguineous mothers and 39 weeks Gestational age mothers had more pain reduction score than others. It was confirmed using chi square test.

Table 4.14: Association between mothers demographic variables and post-test level of pain perception score in control group

Demographic variables		Posttest level of pain score						Total	Chi square test
		Mild		Moderate		Severe			
		n	%	n	%	n	%		
Age	15 -20 years	0	0.0%	1	10.0%	9	90.0%	10	χ2=0.74
	21 -25 years	0	0.0%	2	13.3%	13	86.7%	15	P=0.69
	26 -30 years	0	0.0%			5	100.0%	5	DF= 2 NS
Education status	Illiterate	0	0.0%			1	100.0%	1	χ2=2.91 P=0.40 DF= 3 NS
	Primary education	0	0.0%			6	100.0%	6	
	Secondary education	0	0.0%	3	18.8%	13	81.3%	16	
	Graduate and above	0	0.0%			7	100.0%	7	
Place of living	Urban	0	0.0%			4	100.0%	4	χ2=0.83
	Rural	0	0.0%	3	12.5%	21	87.5%	24	P=0.65
	Sub urban	0	0.0%			2	100.0%	2	DF= 2 NS
Religion	Hindu	0	0.0%	3	12.0%	22	88.0%	25	χ2=0.66
	Christian	0	0.0%			4	100.0%	4	P=0.71
	Muslim	0	0.0%			1	100.0%	1	DF= 2 NS
Family type	Nuclear family	0	0.0%	3	15.0%	17	85.0%	20	χ2=1.66 P=0.19 DF= 1 NS
	Joint family	0	0.0%			10	100.0%	10	
Occupation status	Unemployed	0	0.0%	3	10.7%	25	89.3%	28	χ2=0.23 P=0.62 DF= 1 NS
	Employed	0	0.0%			2	100.0%	2	
work pattern	Sedentary	0	0.0%	2	13.3%	13	86.7%	15	χ2=0.48 P=0.78 DF= 2 NS
	Moderate	0	0.0%	1	7.7%	12	92.3%	13	
	Heavy	0	0.0%			2	100.0%	2	
Monthly income	Rs. 1000- 3000	0	0.0%			1	100.0%	1	χ2=2.22 P=0.52 DF= 3 NS
	Rs. 3001 - 6000	0	0.0%	1	16.7%	5	83.3%	6	
	Rs. 6001 - 10000	0	0.0%			11	100.0%	11	
	> Rs.10000	0	0.0%	2	16.7%	10	83.3%	12	
Height	< 150 cm	0	0.0%	2	25.0%	6	75.0%	8	χ2=3.01 P=0.22 DF= 2 NS
	151 - 160 cm	0	0.0%	1	7.1%	13	92.9%	14	
	161 - 170 cm	0	0.0%			8	100.0%	8	
Weight	< 50 kg	0	0.0%	2	33.3%	4	66.7%	6	χ2=6.29 P=0.10 DF= 3 NS
	51 -60 kg	0	0.0%			11	100.0%	11	
	61 -70 kg	0	0.0%			8	100.0%	8	
	> 70 kg	0	0.0%	1	20.0%	4	80.0%	5	

Age at menarche	11 -12 years	0	0.0%			3	100.0%	3	$\chi 2$=1.01
	13 -14 years	0	0.0%	3	13.0%	20	87.0%	23	P=0.60
	15 -16 years	0	0.0%			4	100.0%	4	DF= 2 NS
Age at marriage	<20 years	0	0.0%	1	7.7%	12	92.3%	13	$\chi 2$=0.48
	21 -25 years	0	0.0%	2	13.3%	13	86.7%	15	P=0.78
	> 25 years	0	0.0%			2	100.0%	2	DF= 2 NS
Type of marriage	Consanguineous	0	0.0%	1	14.3%	6	85.7%	7	$\chi 2$=0.18
	Non Consanguineous	0	0.0%	2	8.7%	21	91.3%	23	P=0.78 DF= 1 NS
Gestational age	37 weeks	0	0.0%			4	100.0%	4	$\chi 2$=1.52P=0.67
	38 weeks	0	0.0%	1	11.1%	8	88.9%	9	
	39 weeks	0	0.0%	1	7.7%	12	92.3%	13	
	40 weeks	0	0.0%	1	25.0%	3	75.0%	4	DF= 3 NS
Position	LOA	0	0.0%	2	8.3%	22	91.7%	24	$\chi 2$=0.37
	ROA	0	0.0%	1	16.7%	5	83.3%	6	P=0.54 DF= 1 NS
Present	CEPHALIC	0	0.0%	3	10.0%	27	90.0%	30	$\chi 2$=0.00 P=1.00 DF= 1 NS

DF= Degrees of Freedom Not significant P> 0.05 NS= Not significant

Table 4.14 shows the association between mothers demographic variables with posttest level of pain perception score in control group. None of the variables are significant. It was confirmed using chi square test.

Table 4.15: Association between mothers demographic variables with pain reduction score in experimental group

Demographic variables		N	Pain reduction score						Oneway ANOVA F-test/ t-Test
			Pretest		Posttest		Pain reduction score= pretest-posttest		
			Mean	SD	Mean	SD	Mean	SD	
Age	15 -20 years	5	8.60	.55	6.47	.71	2.13	1.02	**F=3.56**
	21 -25 years	18	8.67	.79	6.28	1.07	2.39	1.32	**P=0.05***
	26 -30 years	7	8.80	.58	5.14	1.07	3.66	1.20	**S**
Education status	Illiterate	1	8.10	0.00	6.00	0.0	2.10	1.0	**F=2.96**
	Primary education	8	8.78	0.74	6.38	.92	2.40	1.32	**P=0.05***
	Secondary education	15	9.66	0.70	6.13	1.13	3.53	1.21	**S**
	Graduate and above	6	9.63	0.75	5.67	.98	3.96	1.02	
Place of living	Urban	7	9.43	.53	7.00	1.15	2.43	1.13	**F=3.51**
	Rural	21	9.10	.77	5.54	.97	3.56	1.18	**P=0.04***
	Sub urban	2	9.50	.71	7.50	.71	2.00	1.41	**S**
Religion	Hindu	25	9.12	.67	6.28	1.02	2.84	1.14	F=1.47
	Christian	3	9.33	1.15	5.33	.58	4.00	1.73	P=0.25
	Muslim	2	10.00	.00	6.50	.71	3.50	.71	NS
Family type	Nuclear family	16	9.19	.66	6.38	1.09	2.81	1.22	t=0.91 P=0.37
	Joint family	14	9.21	.80	6.00	.88	3.21	1.19	NS
Occupation status	Unemployed	27	9.30	.67	6.22	1.01	3.07	1.24	t=1.01P=0.32
	Employed	3	8.33	.58	6.00	1.00	2.33	.58	NS
Work pattern	Sedentary	13	9.08	.76	5.92	.86	3.15	1.41	F=0.46
	Moderate	15	9.20	.68	6.40	1.12	2.80	1.08	P=0.63
	Heavy	2	10.00	.00	6.50	.71	3.50	.71	NS
Monthly income	Rs. 1000-3000	2	9.50	.71	6.00	.00	3.50	.71	F=0.18 P=0.90 NS
	Rs. 3001 - 6000	3	9.00	1.00	6.00	1.00	3.00	1.73	
	Rs. 6001 - 10000	12	9.33	.49	6.25	.97	3.08	1.16	
	> Rs.10000	13	9.08	.86	6.23	1.17	2.85	1.28	
Height	< 150 cm	5	9.00	.71	6.00	1.00	3.00	1.22	F=1.23
	151 - 160 cm	19	9.16	.76	6.37	1.07	2.79	1.27	P=0.30
	161 - 170 cm	6	9.50	.55	5.83	.75	3.67	.82	NS
Weight	< 50 kg	4	8.75	.50	6.00	.82	2.75	.96	F=0.96 P=0.42 NS
	51 -60 kg	10	9.30	.82	6.00	.82	3.30	1.16	
	61 -70 kg	10	9.30	.67	6.10	.99	3.20	1.03	
	> 70 kg	6	9.17	.75	6.83	1.33	2.33	1.63	

Age at menarche	11 -12 years	5	9.00	.71	6.40	.55	2.60	.89	F=0.36
	13 -14 years	21	9.19	.75	6.14	1.01	3.05	1.24	P=0.69
	15 -16 years	4	9.50	.58	6.25	1.50	3.25	1.50	NS
Age at marriage	<20 years	10	9.30	.67	6.50	1.08	2.80	1.40	F=0.41
	21 -25 years	17	9.24	.75	6.06	.97	3.18	1.13	P=0.66
	> 25 years	3	8.67	.58	6.00	1.00	2.67	1.15	NS
Type of marriage	Consanguineous	5	9.30	.89	7.50	1.34	2.20	1.10	**t=2.27P=0.03* S**
	Non Consanguineous	25	9.32	.67	5.76	.94	3.56	1.24	
Gestational age	37 weeks	5	9.00	1.00	6.90	.84	2.10	0.84	**F=3.02 P=0.05* S**
	38 weeks	5	9.40	.55	7.10	.84	2.30	1.14	
	39 weeks	14	9.36	.63	5.72	.97	3.64	1.17	
	40 weeks	6	8.83	.75	6.34	1.38	2.49	1.51	
Position	LOA	26	9.12	.71	6.19	.94	2.92	1.13	t=1.15 P=0.34 NS
	ROA	4	9.75	.50	6.25	1.50	3.50	1.73	
Present	CEPHALIC	30	9.20	.71	6.20	1.00	3.00	1.20	t=0.26 P=0.84 NS

* significant at P≤0.05 ** high significant at P≤0.01

Table 4.15 shows the association between mothers demographic variables with pain reduction score in experimental group. Elders, rural, more educated and Non-Consanguineous mothers and 39 weeks Gestational week mothers had more pain reduction score than others. It was confirmed using one-way analysis of variance F-test and student independent t-test.

Table 4.16: Association between mothers demographic variables and pain reduction score in control group

Demographic variables		N	Pain reduction score						Oneway ANOVA F-test/ t-Test
			Pretest		Posttest		Pain reduction score= pretest-posttest		
			Mean	SD	Mean	SD	Mean	SD	
Age	15 -20 years	10	9.20	.79	8.80	1.23	.40	1.26	F=0.16
	21 -25 years	15	9.00	1.20	8.53	1.25	.47	1.85	P=0.85
	26 -30 years	5	9.00	.71	9.00	1.00	.00	1.41	NS
Education status	Illiterate	1	9.00	.	8.00	.	1.00	.	F=0.59P =0.55 NS
	Primary education	6	9.50	.55	9.00	.89	.50	.84	
	Secondary education	16	9.25	.93	8.44	1.36	.81	1.56	
	Graduate and above	7	8.29	1.11	9.14	.90	-.86	1.68	
Place of living	Urban	4	9.25	.50	8.25	.50	1.00	.00	F=0.59
	Rural	24	8.96	1.04	8.75	1.26	.21	1.69	P=0.55
	Sub urban	2	10.00	.00	9.00	1.41	1.00	1.41	NS
Religion	Hindu	25	9.04	1.02	8.68	1.25	.36	1.63	F=1.52
	Christian	4	9.50	.58	8.50	.58	1.00	.00	P=0.24
	Muslim	1	8.00	.	10.00	.	-2.00	.	NS
Family type	Nuclear family	20	9.30	.92	8.70	1.34	.60	1.60	t=1.16 P=0.25
	Joint family	10	8.60	.97	8.70	.82	-.10	1.45	NS
Occupation status	Unemployed	28	9.07	1.02	8.75	1.21	.32	1.61	t=0.58 P=0.56 NS
	Employed	2	9.00	.00	8.00	.00	1.00	.00	
work pattern	Sedentary	15	9.07	1.10	8.53	1.25	.53	1.77	F=0.45
	Moderate	13	9.08	.95	9.00	1.15	.08	1.44	P=0.64
	Heavy	2	9.00	.00	8.00	.00	1.00	.00	NS
Monthly income	Rs.1000-3000	1	9.00	.	8.00	.	1.00	.	F=0.23 P=0.87 NS
	Rs.3001 - 6000	6	8.67	.52	8.67	1.63	.00	2.00	
	Rs.6001 - 10000	11	9.64	.67	9.36	.67	.27	.79	
	> Rs.10000	12	8.75	1.22	8.17	1.11	.58	1.98	
Height	< 150 cm	8	9.00	1.07	8.50	1.60	.50	1.85	F=0.12
	151 - 160 cm	14	9.29	.91	8.86	1.17	.43	1.50	P=0.82
	161 - 170 cm	8	8.75	1.04	8.63	.74	.13	1.55	NS
Weight	< 50 kg	6	8.17	.98	8.33	1.86	-.17	2.48	F=0.50 P=0.68 NS
	51 -60 kg	11	9.64	.50	9.18	.87	.45	.69	
	61 -70 kg	8	8.88	1.13	8.63	.52	.25	1.39	
	> 70 kg	5	9.20	.84	8.20	1.48	1.00	2.12	

Age at menarche	11 -12 years	3	8.33	1.15	8.33	.58	.00	1.73	F=0.48
	13 -14 years	23	9.26	.86	8.74	1.32	.52	1.59	P=0.61
	15 -16 years	4	8.50	1.29	8.75	.50	-.25	1.50	NS
Age at marriage	<20 years	13	9.23	.93	8.77	1.09	.46	1.27	F=0.07
	21 -25 years	15	9.00	1.07	8.67	1.35	.33	1.88	P=0.92
	> 25 years	2	8.50	.71	8.50	.71	.00	1.41	NS
Type of marriage	Consanguineous	7	9.00	.82	8.71	1.38	.29	1.70	t=0.15
	Non Consanguineous	23	9.09	1.04	8.70	1.15	.39	1.56	P=0.87 NS
Gestational age	37 weeks	4	8.00	1.15	8.50	.58	-.50	1.73	F=0.82
	38 weeks	9	9.22	1.09	8.89	1.27	.33	1.87	P=0.49
	39 weeks	13	9.23	.83	8.85	1.14	.38	1.39	NS
	40 weeks	4	9.25	.50	8.00	1.63	1.25	1.26	
Position	LOA	24	9.17	.87	8.75	1.15	.42	1.38	t=0.82
	ROA	6	8.67	1.37	8.50	1.38	.17	2.32	P=0.49 NS
Present	CEPHALIC	30	9.07	.98	8.70	1.18	.37	1.56	t=0.26 P=0.84 NS

Not significant P> 0.05 NS= Not significant

Table 4.16 shows the association between mothers demographic variables with pain reduction score in control group. None of the variables are significant. It was confirmed using oneway analysis of variance F-test and student independent t-test.

CHAPTER V

SUMMARY OF THE STUDY FINDINGS

The study was done to assess the effectiveness of Moist heat application on labor pain perception during first stage of labor among primigravida mothers were summarized in this chapter based on the demographic, obstetric and numerical pain rating scale based variables.

5.1 Based on demographic findings

- In this study 18 (60%) of primigravida mothers in experimental group and 15 (50%) in the control group were in the age group between 21-25 years.
- With regard to educational status, 15 (50%) of the primigravida mothers in the experimental group and 16 (53.4%) in the control group were studied up to secondary education
- With regard of residence, 21 (70%) of the primigravida mothers in the experimental group and 24 (80%) in the control group were living in rural.
- Regarding religion, majority of the primigravida mothers 25 (83.3%) both in the experimental and control group were Hindu.
- According to type of family, 16 (53.3%) of the primigravida mothers in the experimental group and 20 (66.7%) in the control group were living in nuclear family.
- According to occupation, 27 (90%) of the primigravida mothers in the experimental group and 28 (93.3%) in the control group were unemployed.
- Regarding work pattern, 15 (50%) of the primigravida mothers in the experimental group were moderate workers, 15 (50%) and in the control group were sedentary workers.
- About family monthly income,13 (43.3%) of the primigravida mothers in the experimental group and 12 (40%) in the control group were receiving more than Rs.10000/- of monthly income.

- Regarding height, 19 (63.3%) of the primigravida mothers in the experimental group and 14 (46.6%) in the control group were between 151 -160 cm height.
- Regarding weight,10 (33.3%) of the primigravida mothers in the experimental group were between 51-60kg, and 61-70 kg weight, and 11(36.6%) in the control group were between 51-60 kg weight.

5.2 Based on the Obstetric findings

- Regarding attained age at menarche, 21 (70%) of the primigravida mothers in the experimental group and 23 (76.7%) in the control group were in the age group in between 13 -14 years.
- According marriage age, 17 (56.7%) of the primigravida mothers in the experimental group and 15 (50%) in the control group were in the age group in between 21 -25 years.
- According to type of marriage, 25 (83.3%) of the primigravida mothers in the experimental group and 23 (76.7%) in the control group were non-consanguineous marriage.
- Regarding gestational age, 14 (46.6%) of the primigravida mothers in the experimental group and 13 (43.4%) in the control group were 39 weeks of gestational age.
- In view of position of foetus, 26 (86.7%) of the primigravida mothers in the experimental group and 24 (80%) in the control group were in the left occipito anterior.
- In view of presentation of foetus, 30 (100%) of the primigravida mothers both in the experimental and in the control group were cephalic presentation.

5.3 Findings of pre-test level of labor pain among primigravida mothers

In pre-test, the level of pain perception on labor pain among primigravida mothers both the experimental and control group 30 (100%) of the mothers were perceived severe pain.

5.4 Findings of post-test level of labor pain among primigravida mothers

In post-test, the level of pain perception on labor pain among primigravida mothers in the experimental group 18 (60%) moderate pain level, 12 (40%) severe pain and none of them had no pain and mild pain, In the control group 3 (10%) moderate pain level, 27 (90%) severe pain and none of them had no pain and mild pain.

5.5 Findings of mean comparison between control and experimental group using student's paired t-test.

The study compared that the pre-test and post-test level of pain perception on first stage of labor, considering the control group the mean value is 1.28 and in experimental group the mean value is 13.65 among primigravida mothers. Mean comparison was calculated by using student paired t-test.

5.6 Findings on effectiveness of moist heat application during first stage of labor among primigravida mothers.

The study revealed that the decreased level of pain perception on first stage of labor among primigravida mothers in the experimental group. Considering control group p- value is 0.21 and the experimental group p-value is 0.001. There is a statistically significant difference in decreased level of pain perception during first stage of labor among primigravida mothers in experimental group. Statistical significance was calculated using paired "t" test.

5.7 Findings based on association between post assessments of effectiveness of moist heat application with the selected demographic and obstetric variables.

The study showed that the association between the post assessments level of pain perception during first stage of labor among the primigravida mothers in the experimental group with their demographic variables like elders, rural, more educated, Non-consanguineous married mothers and 39 weeks of gestational age are significantly associated except that none of the other variables are not significant. Statistical significance was calculated using one-way analysis of variance F-test**.**

CHAPTER VI

DISCUSSION

This chapter deals with the discussion of the results of the data analyzed based on the objectives of the study and the hypothesis. The purpose of the study is to assess the "Effectiveness of moist heat application over the sacrum on labor pain during first stage of labor among primigravida mothers admitted at the Institute of obstetrics and gynecology, Chennai".

Findings based on the Objectives

Objective 1: To assess the pre-test and post-test level of labor pain during first stage of labor among primigravida mothers in experimental group and control group.

- In pre-test level of pain perception almost all the primigravida mothers 30(100%) had severe labor pain in both the experimental and control group. The study findings depict that the pre-test level of pain perceptions was similar in both the experimental and control groups.
- In post-test level of pain perception during first stage of labor among primigravida mothers in the experimental group 18 (60%) had moderate level of pain score, 12 (40%) had sever level of pain score and in the control group 3(10%) had moderate level of pain score, 27(90%) had severe level of pain and none of them had no pain and mild pain level.
- The result consistent nearly with the findings of the study by **Khaskheli M, Baloch S (2010)** who reported that majority of the women experienced childbirth as an exhausting pain experience and few reported that acceptable pain experience.

Objective 2: To find out the effectiveness of moist heat application on sacrum during first stage of labor among primigravida mothers in experimental group.

- The study showed that the level of pain reduction score based on the effectiveness of the moist heat application during first stage of labor among

primigravida mothers in the experimental group 30% and in the control group 3.7%. In considering over all pain reduction score in pretest, the primigravida mothers had 10.12 score where as in posttest the mothers had 21.00 score, so the difference between pretest and post test score is large and it is statistically significant. Differences between pretest and posttest score was analyzed using students paired t-test.

- The current study results consistent with the findings of the study by **Husna Bhanu (2008)**. This study revealed that experimental group who received warm compress on lumbar and sacral region had reduction in pain and experienced comfort than the control group at $p<0.05$ level of significance.
- The difference between pre and post test level of pain perception score is large and it is statistically significant. So, H_1, H_2 accepted.

Objective 3: To compare the pre-test and post-test level of pain during first stage of labor among primigravida mothers in experimental and control group.

- The study compared overall pretest and post-test mean pain score in the experimental and control group. In considering the experimental group in pretest, mothers had 9.20 score where as in post-test mothers had 6.20, so the difference is 3.00. The difference between pre-test and post-test score is large and it is statistically significant. In considering control group in pretest mothers had 9.07 score where as in post-test mothers had 8.70 score, so the difference is 0.37. the difference between pretest and posttest score is small and it is not statistically significant. Differences between pretest and posttest score was analyzed using students paired t-test.
- The result consistent nearly with the finding of the study by **Abdolahian S et al., (2014)** conducted randomized controlled trial study applied heat during active phase of labor pain. The study revealed mean pain scores in the heat therapy group were significantly lower than the control group and the mean satisfaction in the heat therapy was significantly higher than the control group.

Objective 4: To associate the post-test level of pain during first stage of labor among primigravida mothers in experimental and control group with their selected demographic variables.

- The study associated between the post-test level of pain score and mother's demographic variables in experimental and control group. The association were between the post-test level of pain perception on labor pain during first stage of labor among primigravida mothers in the experimental group with their demographic and obstetric variables. Statistical significance was calculated by using chi-square test.
- The study had significant association between the effectiveness of moist heat application on sacrum during first stage of labor among primigravida mothers with their selected demographic variables such as Elders, rural more educated and Non-consanguineous mother and 39 weeks of gestational age mothers had more pain reduction score than the others. None of the other variables are significant. So,the H_3 was accepted.

CHAPTER VII

IMPLICATIONS, CONCLUSION AND RECOMMENDATIONS

The present study assessed the effectiveness of moist heat application on labor pain among primigravida mothers. The study results revealed that moist heat application had a significant effect in decreasing the pain sensation on first stage of labor. Majority of the primigravida mothers in the experimental group were perceived decreased pain level than the control group.

This chapter deals with limitations, implications, and recommendations of the study.

7.1 Implications of the study

The investigator had drawn the following implications from the studies, which are of vital concern in the field of nursing practice, nursing administration, nursing education and nursing research.

Nursing Practice

- Providing non-pharmacological support measures for pain during antepartum, intrapartum and postpartum is the important part in maternal and child health.
- Nurses can be administered non-pharmacological measures like heat application to primigravida mothers and also multigravida mothers during first stage of labour. It can be considered as an independent nursing intervention.
- This intervention is simple, economical, cost-effective, safe and easy to practice.
- Intra partum caregiver of the nurse attending labour have many opportunities to make childbirth experience a pleasant and memorable one by providing comfort measures like heat application for labour pain.

Nursing Administration

- The nurse administrator should motivate the nursing staffs to implement non-pharmacological measures like heat application on first stage of labour pain in nursing care to parturient mothers.
- The nurse administrator can organize conferences and in-service education programme on various non-pharmacological measures in the labour pain relief and intra partum care.
- The nurse administrators to prepare policies and its execution of quality nursing care based on research findings.
- Nurse administrators should make arrangements for adequate nurse patient ratio and family support in the labour room.
- Periodic surveys should be conducted to evaluate the programmes.

Nursing Education

- Nurse educators need to highlight the non-pharmacological pain relief measures like moist heat application in the curriculum of basic nursing education as a part of intra-natal care along with labour support techniques.
- The nurse educator can motivate the students and given a project to experiment the effect of moist heat application in labour.
- To equip nurses to provide holistic care the nursing curriculum needs to cover non-pharmacological methods such as heat application for pain management.
- The nurse educators should conduct workshop, seminars and conferences on alternative and complementary therapy in maternal and child health.
- The use of non-pharmacological pain relieving interventions to be included in the clinical nursing practice.

Nursing Research

- The nurse researcher should motivate the clinical nurse to do research studies experimental or comparative studies to assess the effectiveness of heat application during labour.

- The nurse researcher emphasis should be laid on research in the area of non-pharmacological measures of pain management during labour.
- The nurse researcher should encourage the community health nurse to apply the research findings in their daily nursing care activities during their PHC postings.
- The nurse researcher should conduct periodic review of research findings and disseminate the finding through conferences, seminars and publications in professional, national and international journals and also in the world wide web.

7.2 Recommendations

On the basis of the findings of the study the following recommendations are offered for future research:

- The experimental study can be conducted in various hospital settings with large samples for better generalization.
- The duration of the study can also be extending for the better result.
- A similar study can be conducted on multigravida women in labour.
- A comparative study can be undertaken to evaluate the outcome of labour.
- A comparative study can be conducted with other non-pharmacological measures of labour pain relief.

7.3 Limitations

- The sample size was small.
- The women were not randomly assigned. Hence the convenient sampling restricts the generalization
- The study was limited to primigravida women in labour.
- The intervention was limited during active phase of labour.
- The study can be done to assess the mothers satisfaction and progress of labour.

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TOOL FOR DATA COLLECTION

STRUCTURED INTERVIEW SCHEDULE

SECTION: A

1. Age (in years)
   a) 15 – 20 years
   b) 21 – 25 years
   c) 26 – 30 years
   d) 31 – 35 years
2. Educational status
   a) Illiterate
   b) Primary education
   c) Secondary education
   d) Graduate and above
3. Area of living
   a) Urban
   b) Rural
   c) Sub urban
4. Religion
   a) Hindu
   b) Christian
   c) Muslim
   d) Others
5. Type of family
   a) Nuclear family
   b) Joint family
6. Occupation
   a) Unemployed
   b) Employed
7. Work pattern
   a) Sedentary
   b) Moderate
   c) Heavy

8. Family monthly income (in rupees)
    a) Rs. 1000- 3000
    b) Rs. 3001 – 6000
    c) Rs. 6001 – 10000
    d) Rs. 10000 and above
9. Height of the mother
    a) 150 cm and below
    b) 151 – 160 cm
    c) 161 – 170 cm
    d) 170 cm and above
10. Weight of the mother
    a) 50 kg and below
    b) 51 – 60 kg
    c) 61 – 70 kg
    d) 70 kg and above

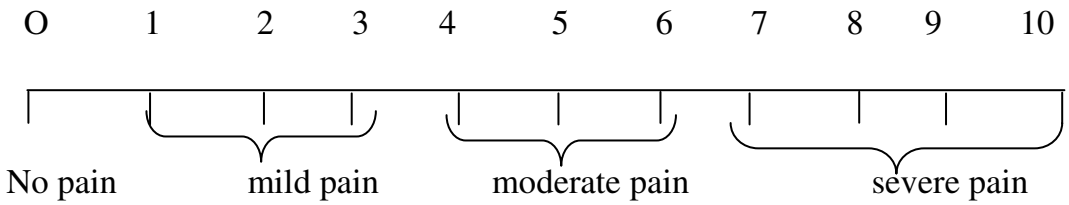
SECTION B:

OBSTETRICAL DATA

1. Age at Menarche
2. Age at Marriage
3. Type of Marriage
    a) Consanguineous
    b) Non-Consanguineous
4. Last menstrual period
5. Expected date of delivery
6. Gestational age
7. Date and time of onset of uterine contractions
8. Foetal presentation
9. Foetal position

SECTION: C

NUMERICAL PAIN ASSESSMENT SCALE



NATURE AND DESCRIPTION OF PAIN	SCORE
No pain	0
Mild pain	1-3
Moderate pain	4-6
Severe pain	7-10

Intervention procedure

Step I

Explain the procedure of Hot water Bag application and its benefits to the mother and establish rapport.

Step II

To check leakage of bag, pour some water into the hot water bag and empty it.

Step III

Check the temperature of the water by using bath thermometer and the hot water temperature is 104-110^0 F

Step IV

After fill one-third of the bag with the hot water. Place the bag over a flat surface and expel the air, cork it tightly. Dry the outside of the bag and check for any leakage by holding the bag upside down. Put on the cover and take it to the bedside.

Step V

Place the mother in a left lateral position. Apply the hot water bag over the sacral for 20 minutes with one-hour interval.

Step VI

Change the position of the bag is necessary. Inspect the area occasionally, refill the bag if necessary.

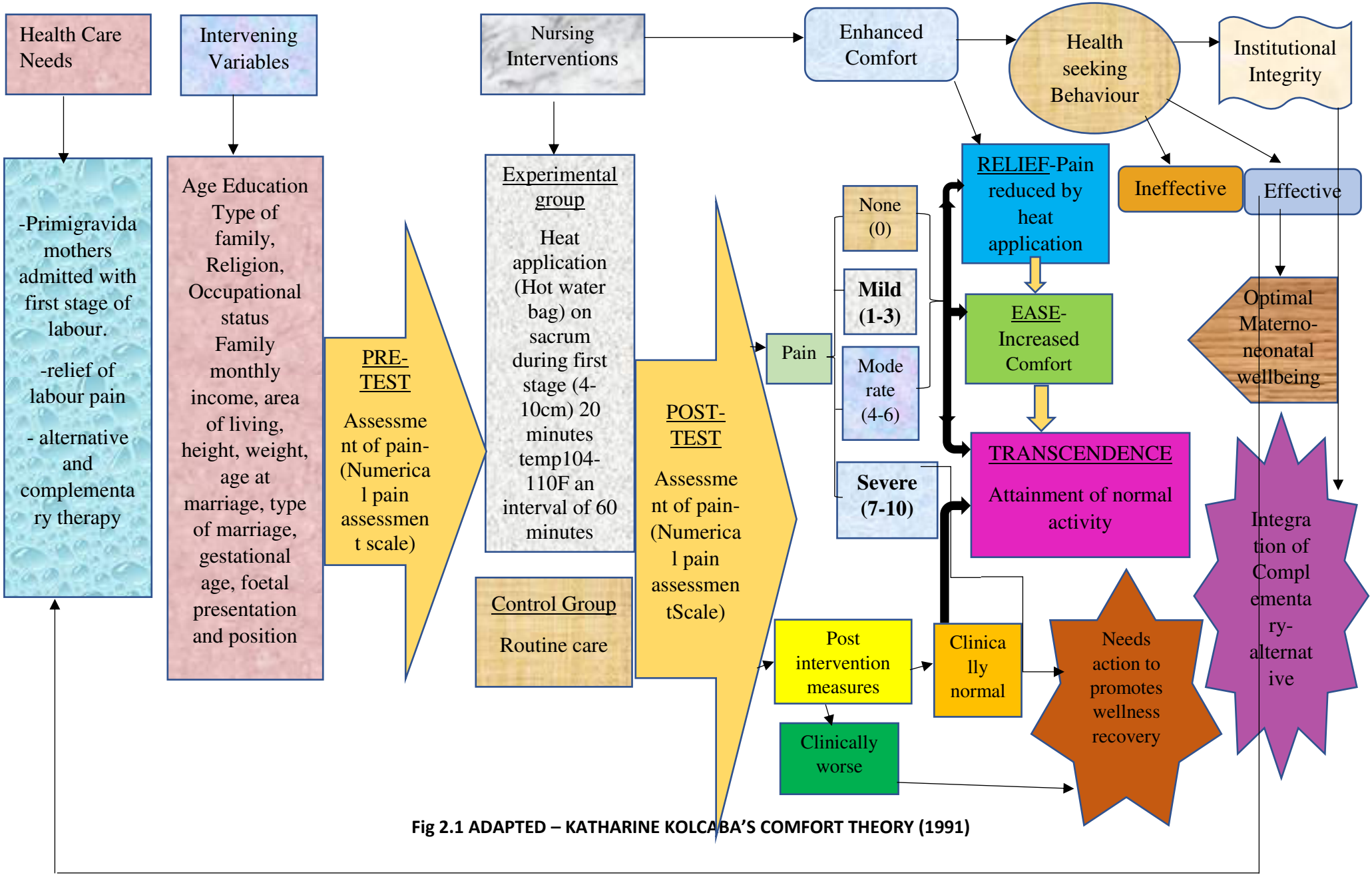


Fig 2.1 ADAPTED – KATHARINE KOLCABA'S COMFORT THEORY (1991)

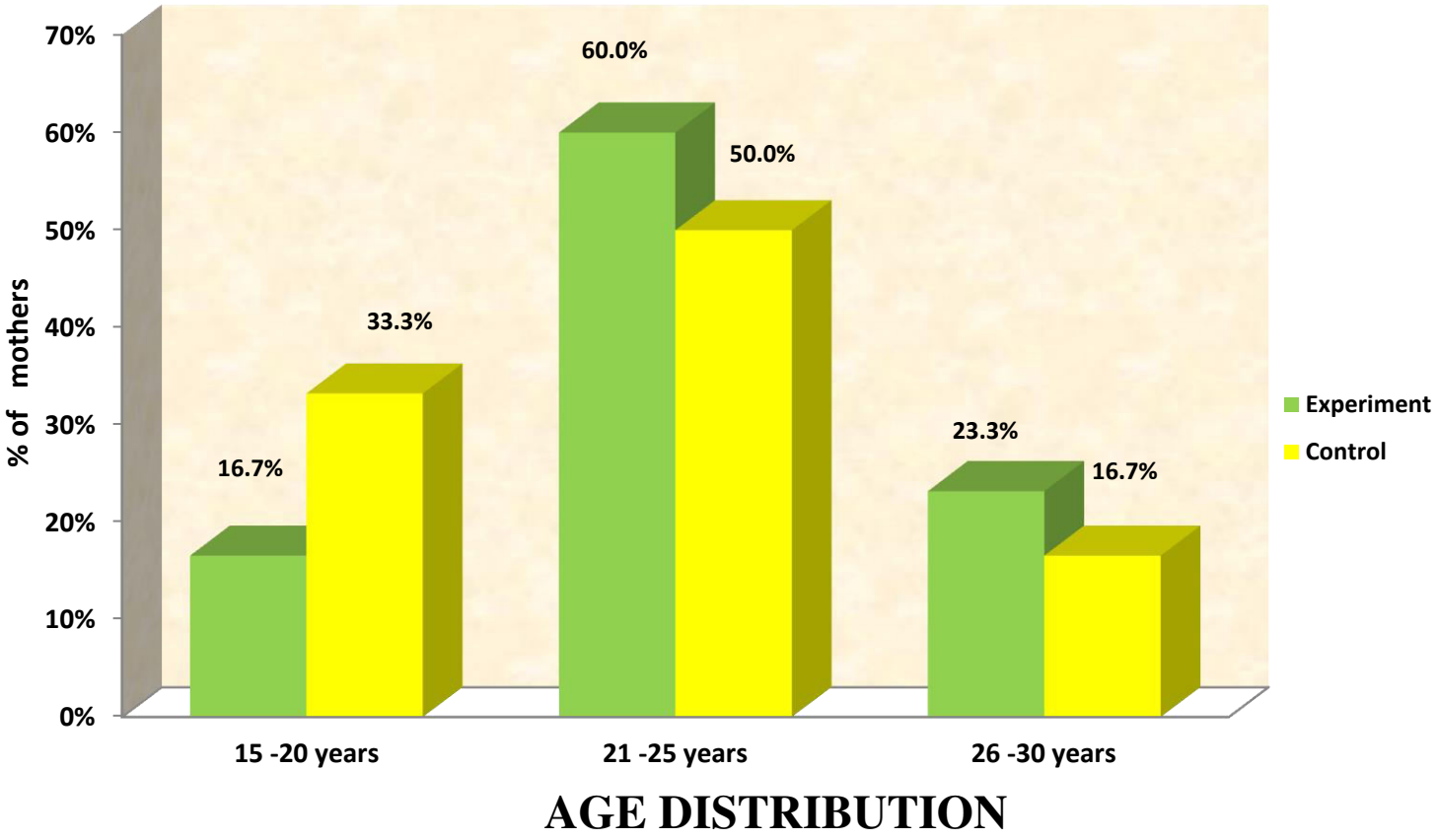


Figure: 4.3 Age wise distribution of study participants

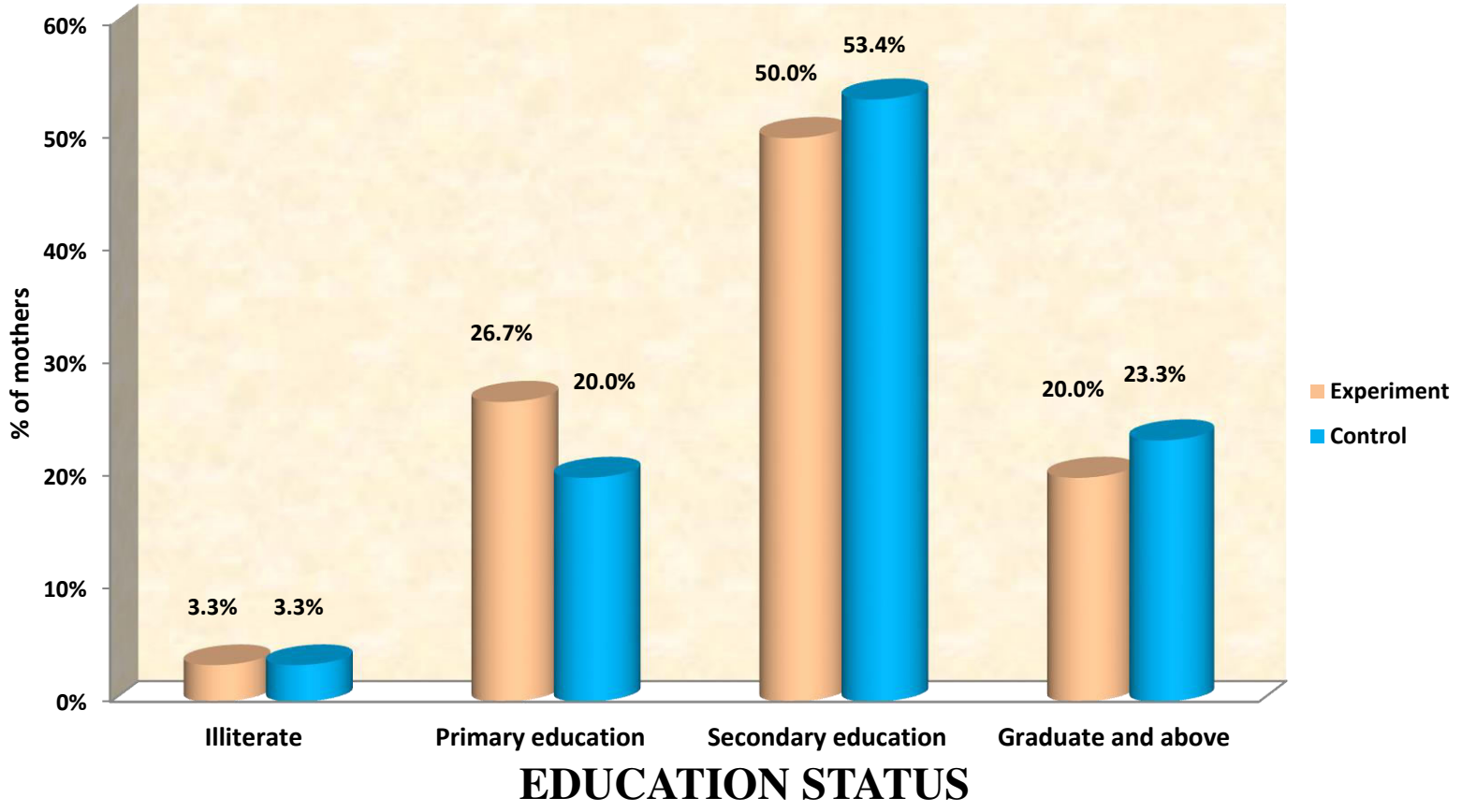


Figure: 4.4 Education wise distribution of study participants

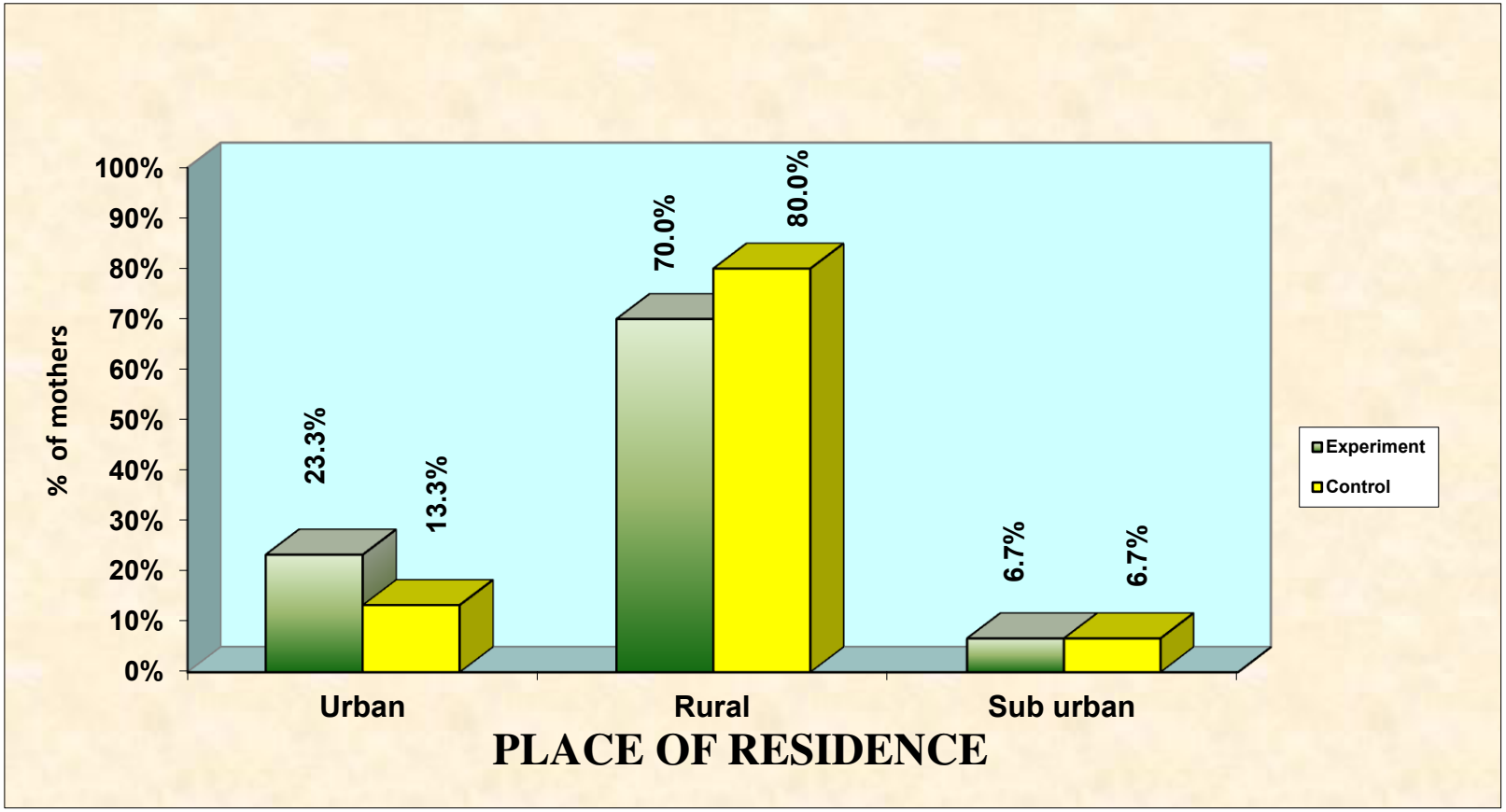


Figure:4.5 Residence wise distribution of study participants

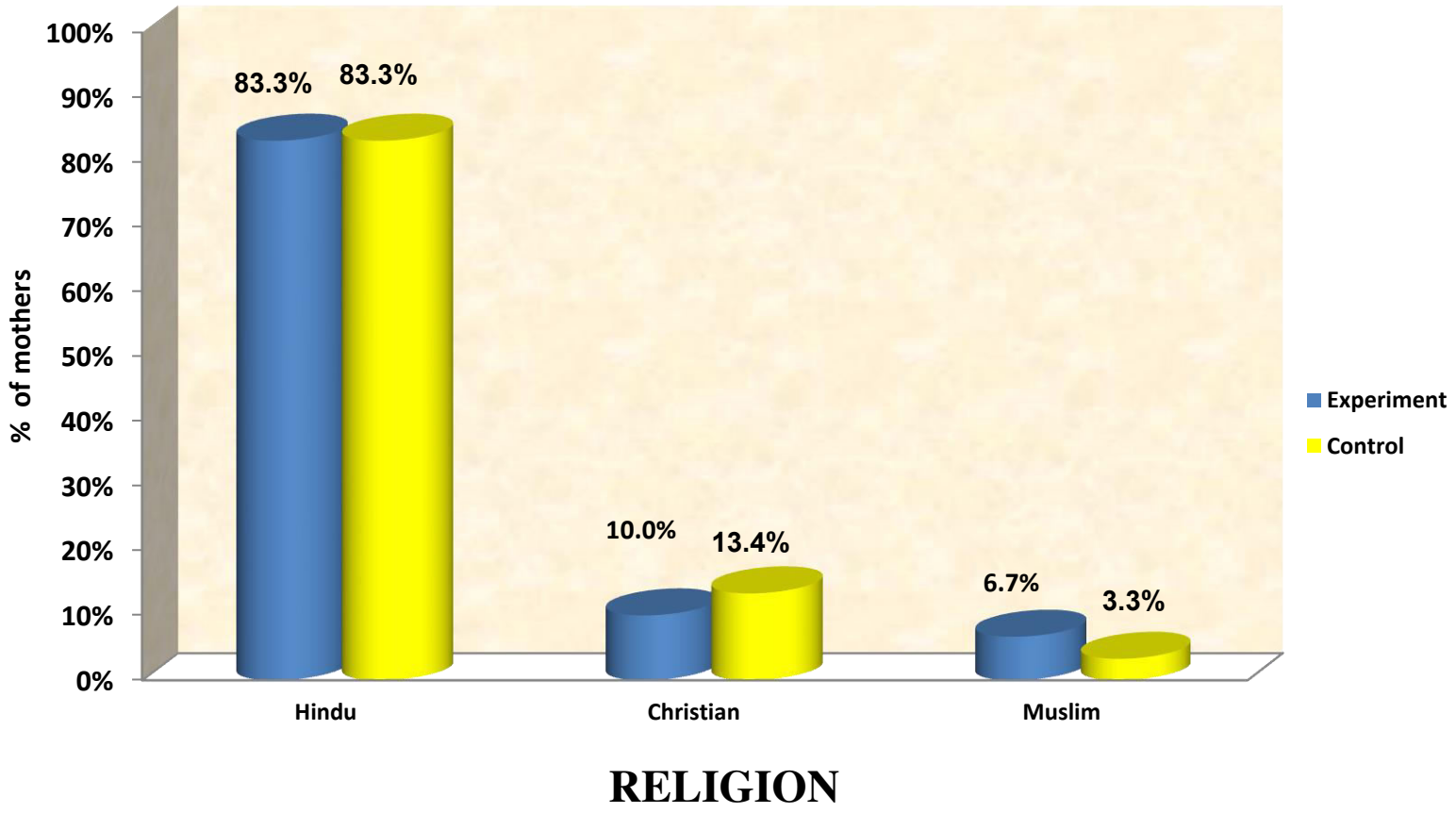


Figure 4.6 Religion wise distribution of study participants

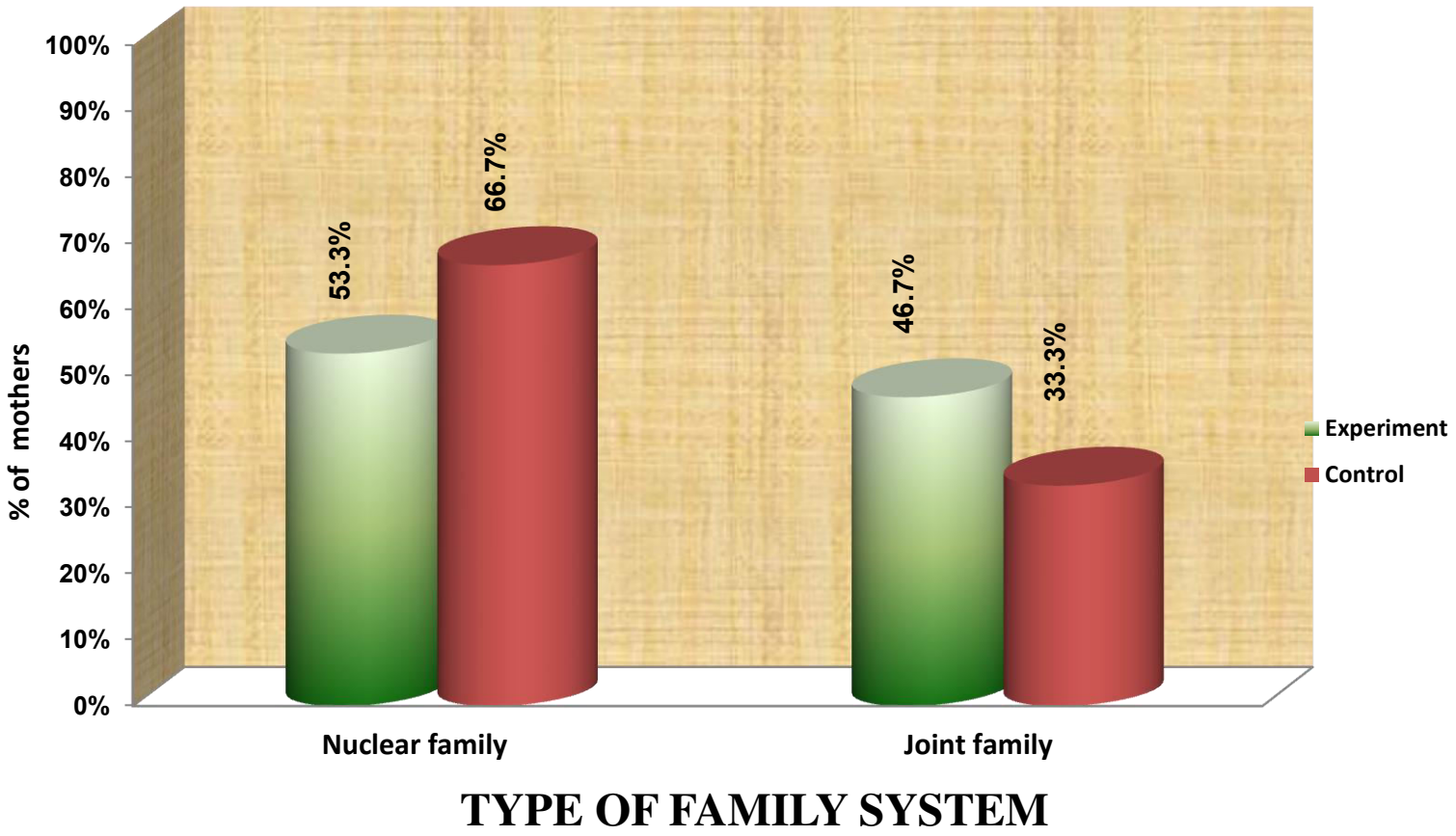


Figure: 4.7 Family type wise distribution of study participants

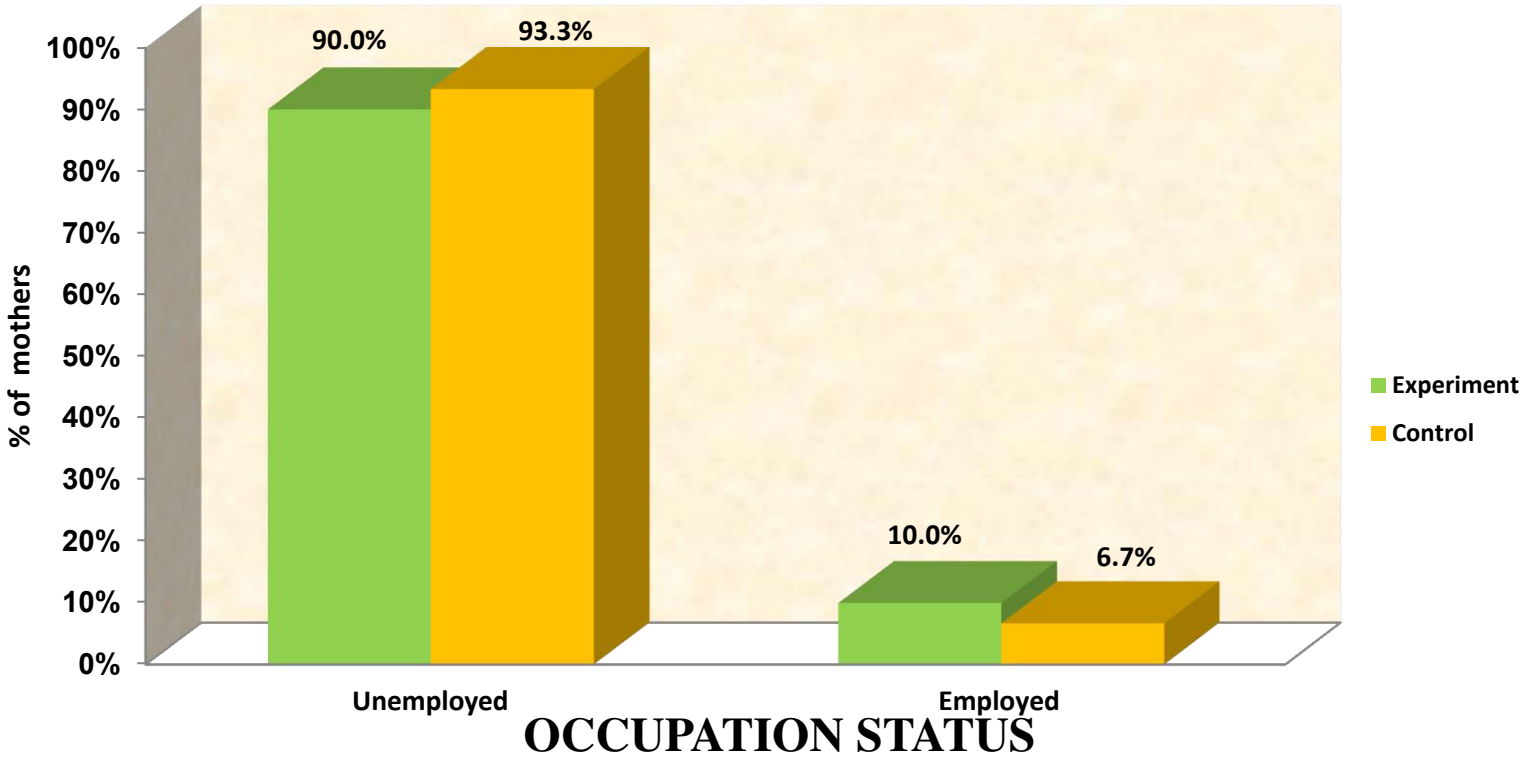


Figure: 4.8 Occupation wise distribution of study participants

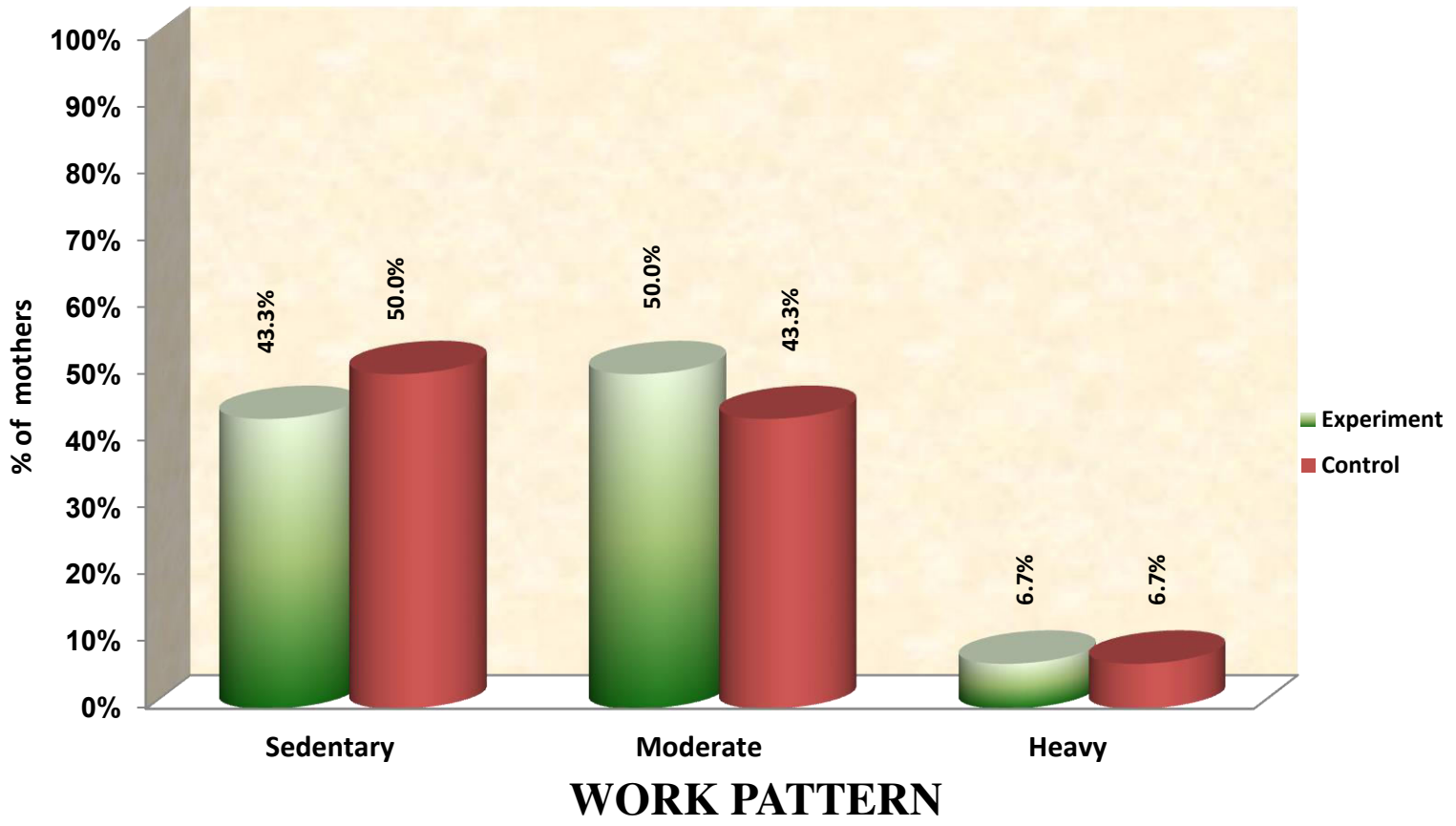


Figure: 4.9 Work pattern wise distribution of study participants

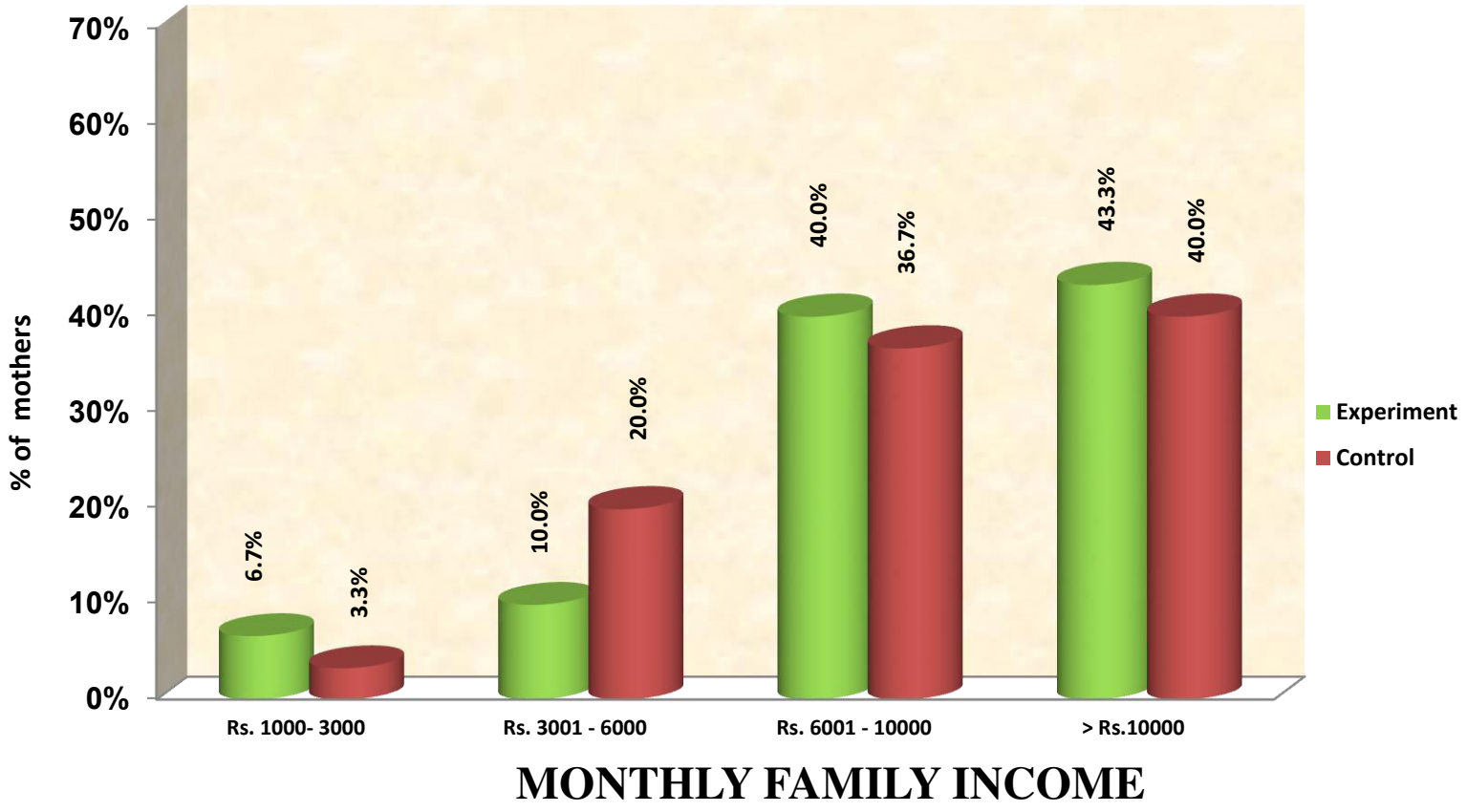


Figure: 4.10 Family monthly income wise distribution of study participants

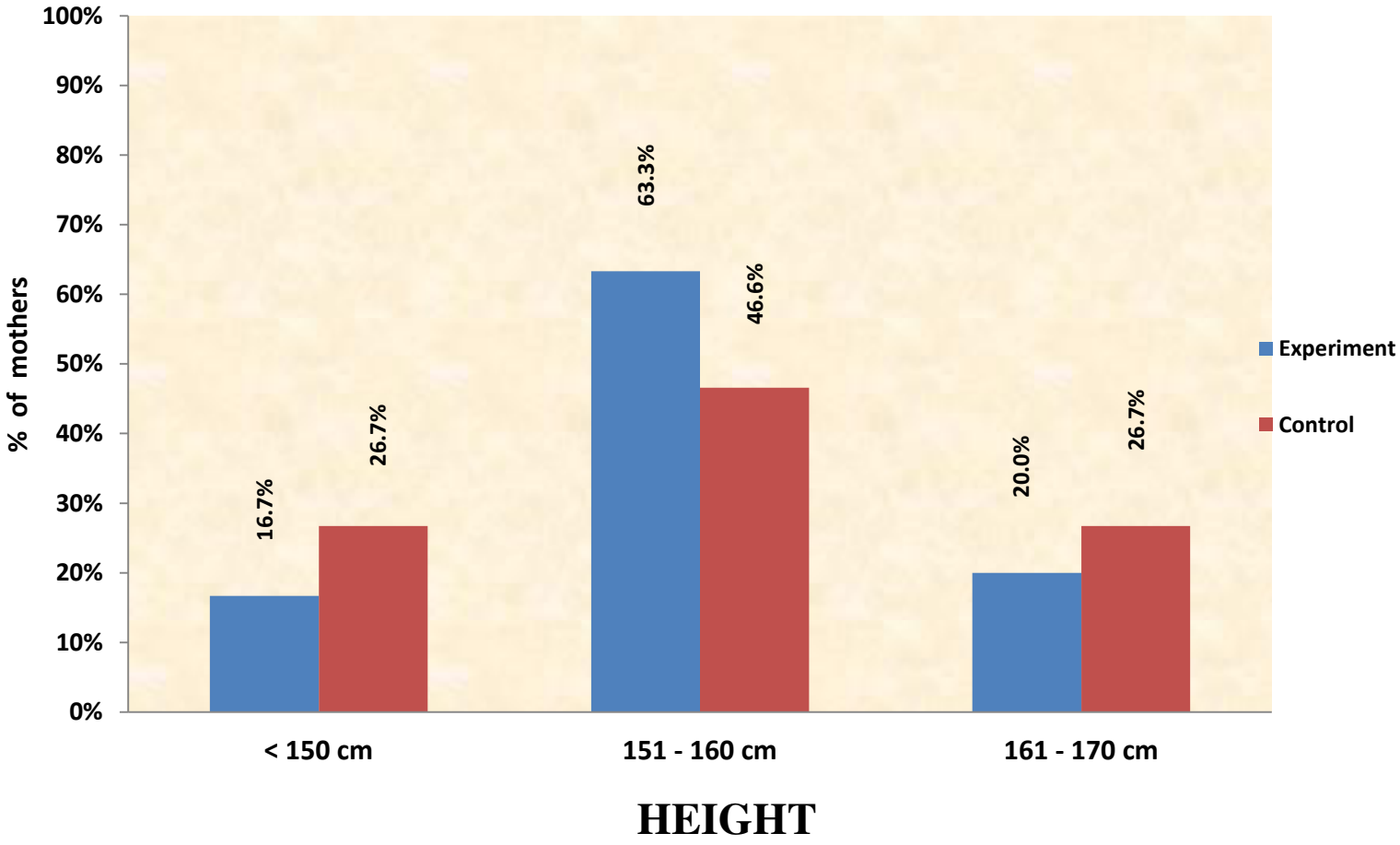


Figure: 4.11 Height wise distribution of study participants

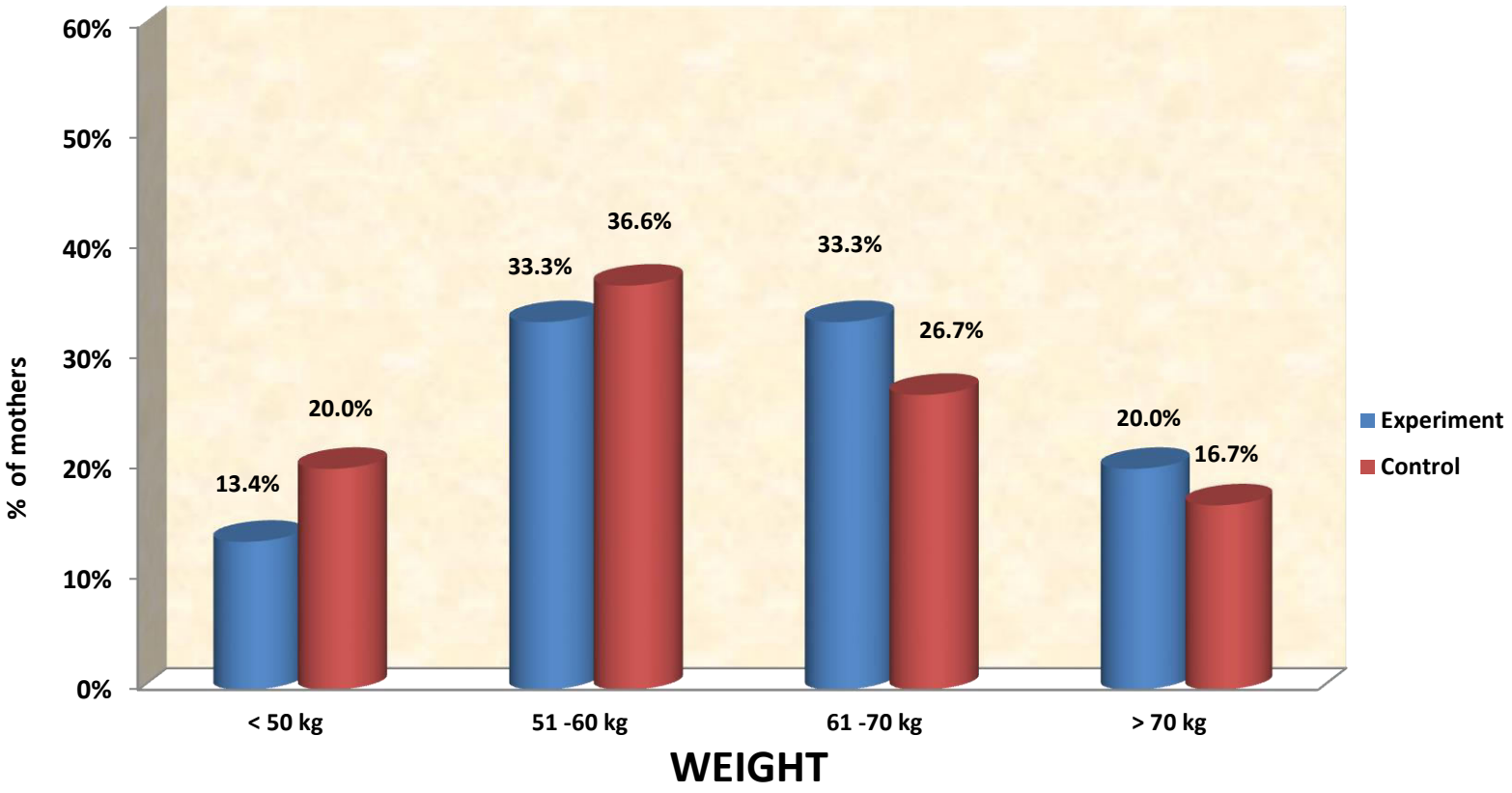


Figure: 4.12 Weight wise distribution of study participants

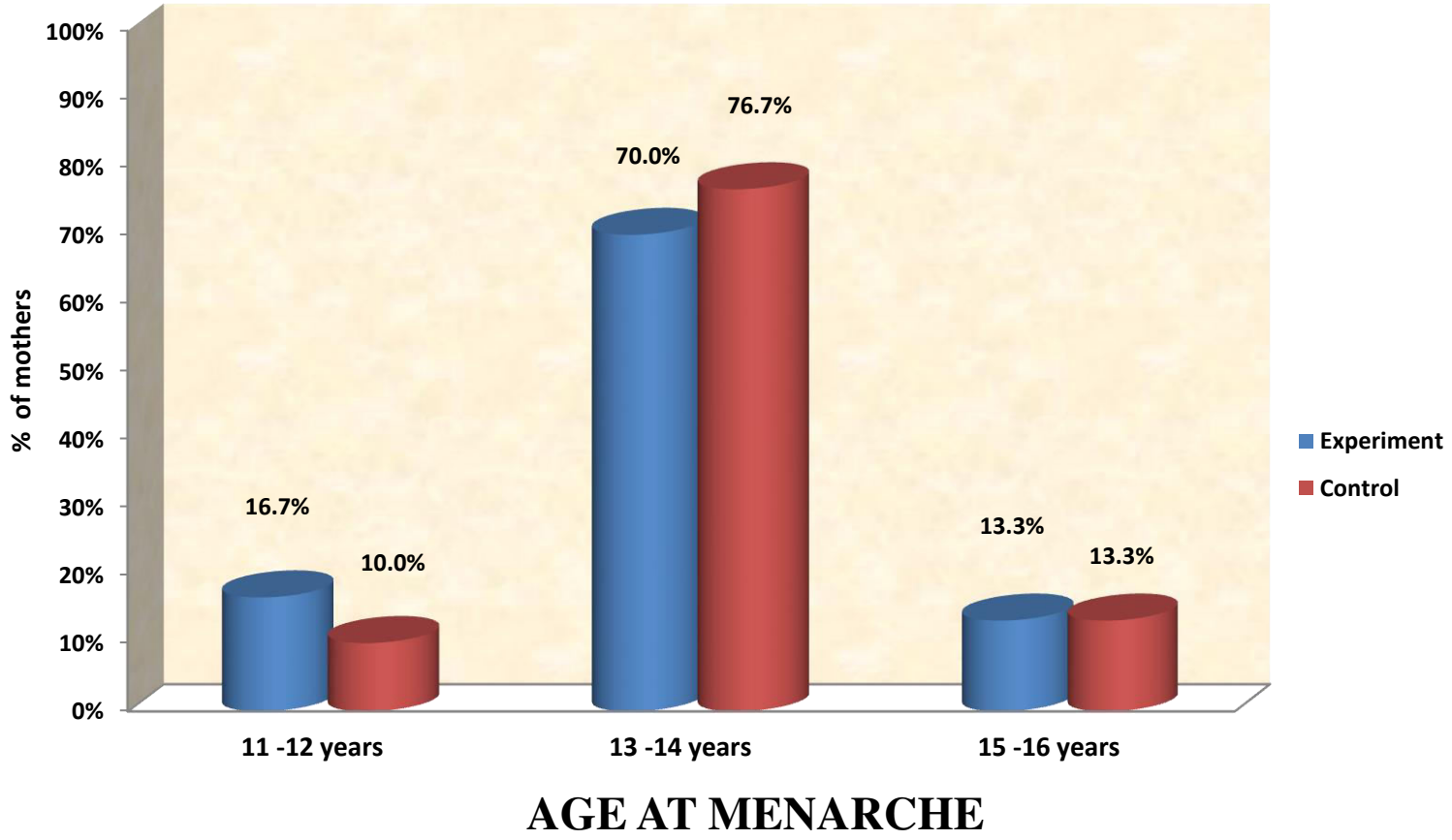


Figure: 4.13 Age at menarche wise distribution of study participants

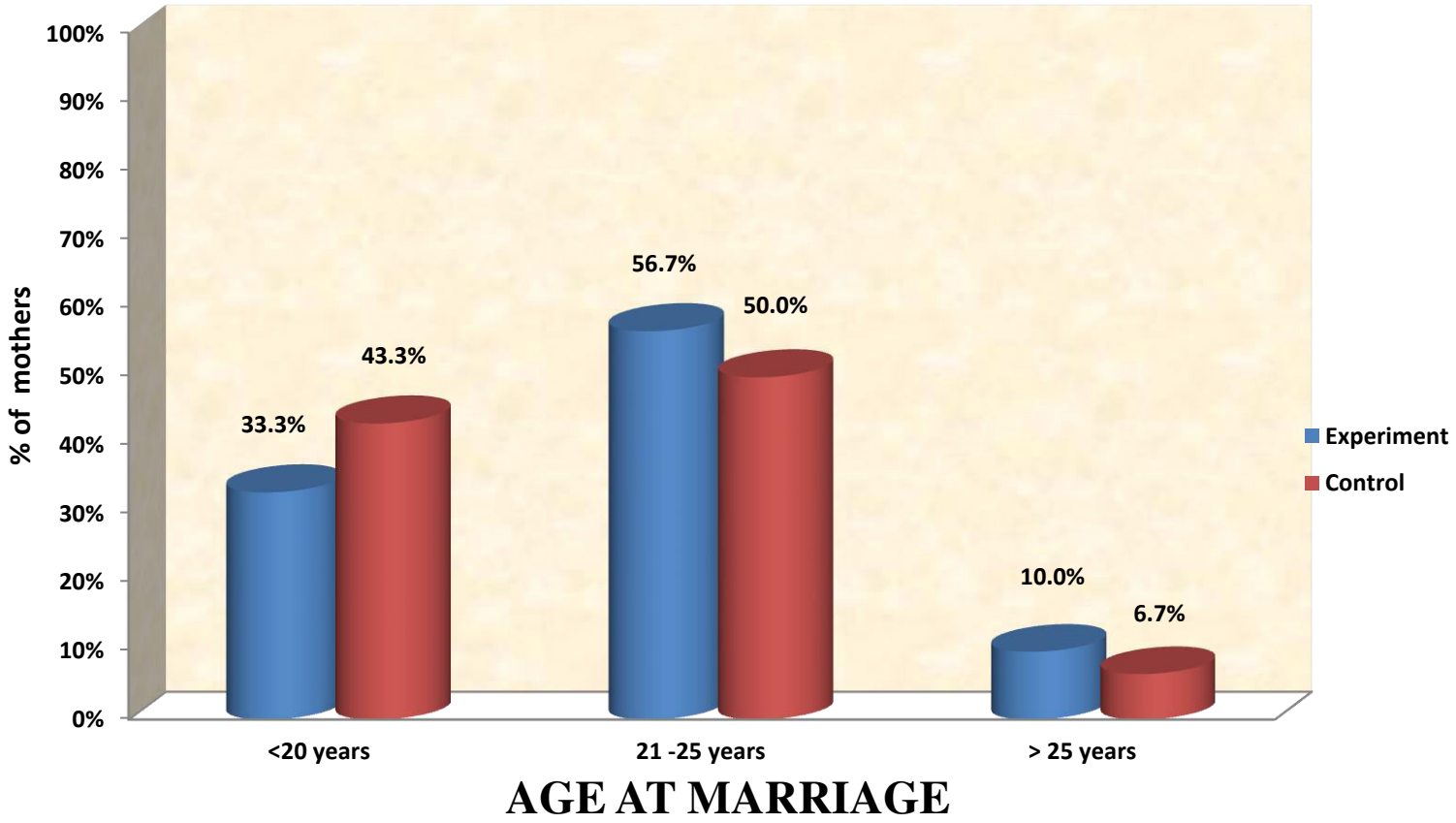


Figure: 4.14 Age at marriage wise distribution of study participants

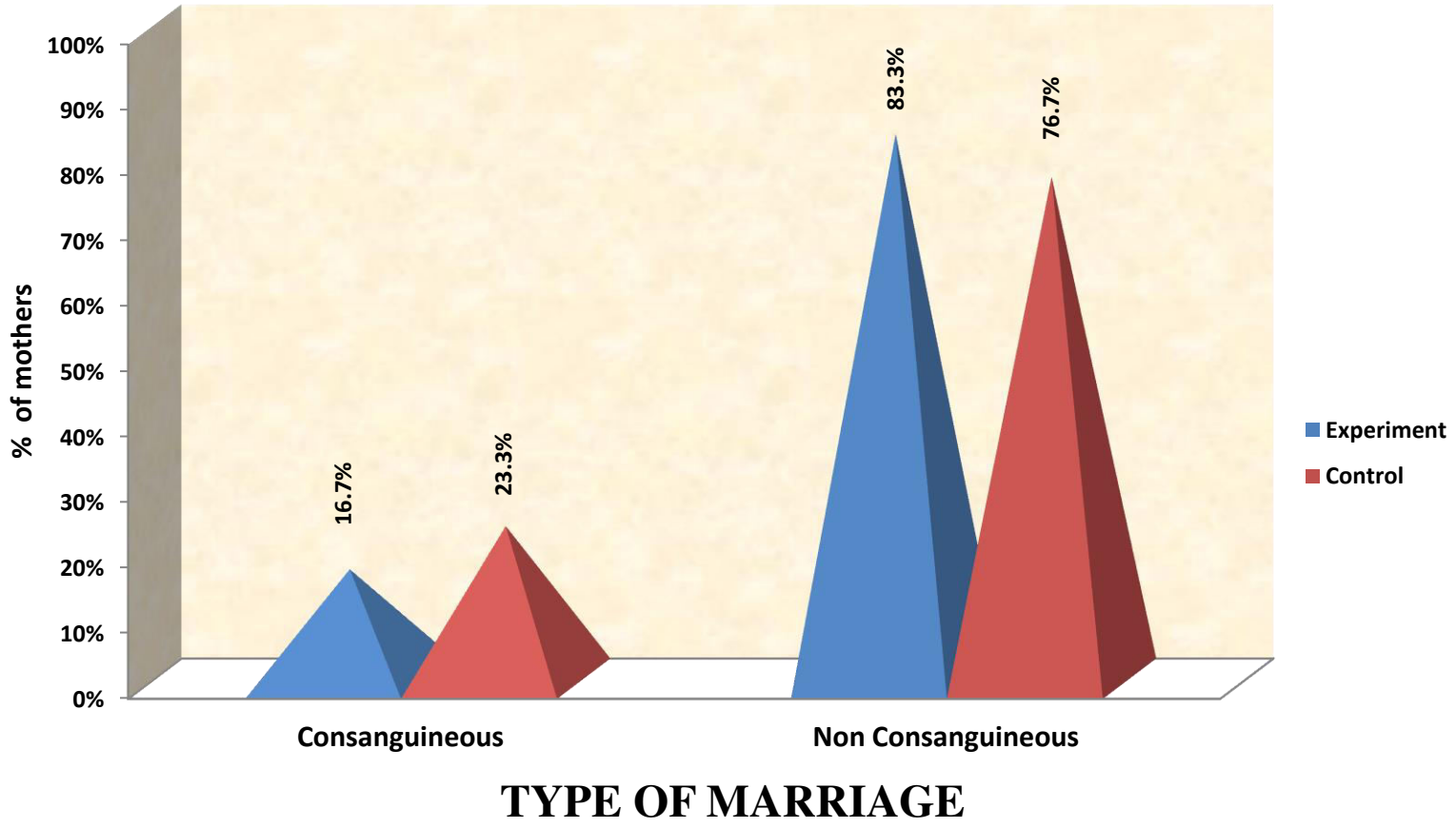


Figure: 4.15 Type of marriage wise distribution of study participants

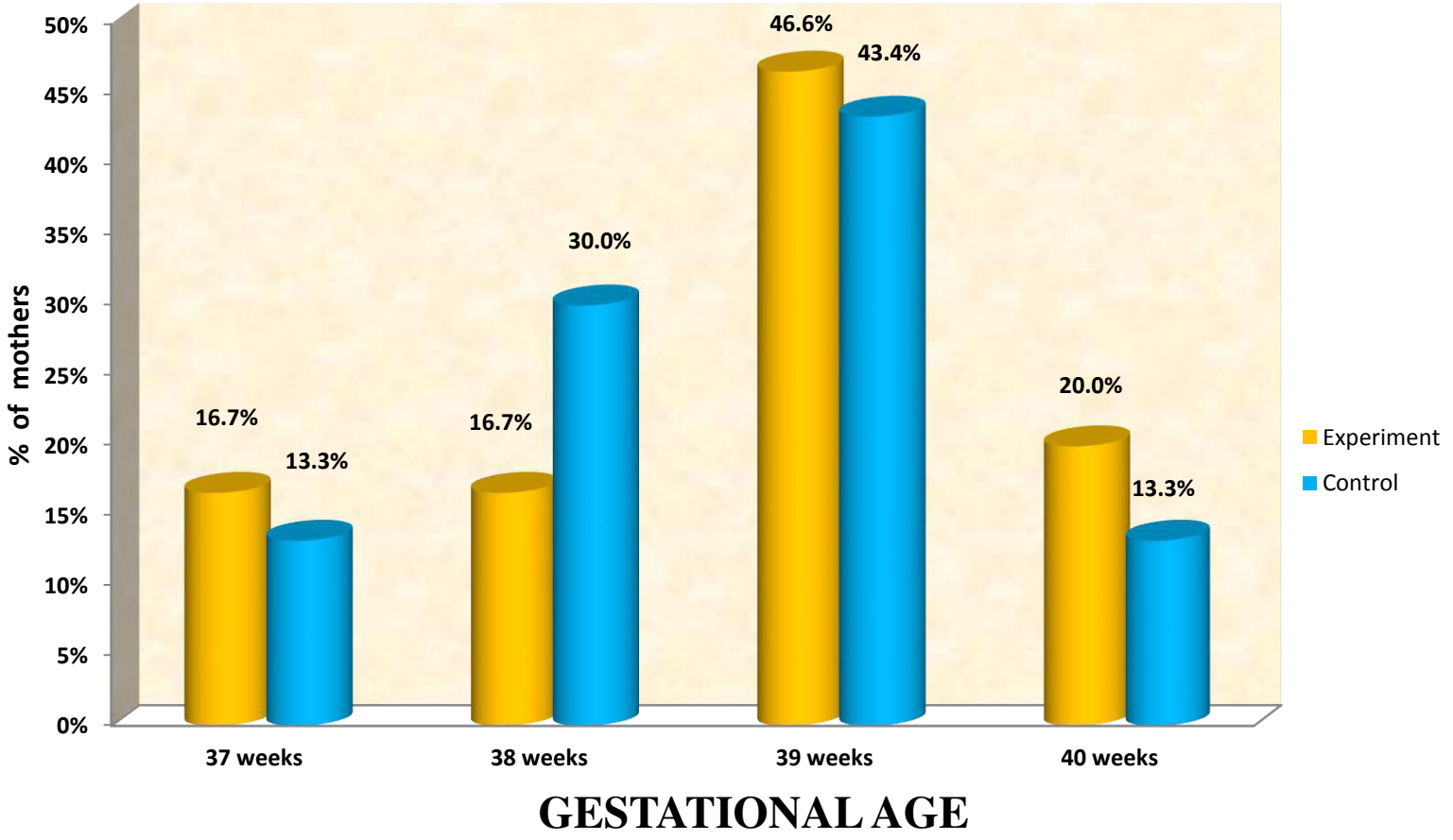


Figure: 4.16 Gestational age wise distribution of study participants

Figure: 4.17 Position of the foetus wise distribution of study participants

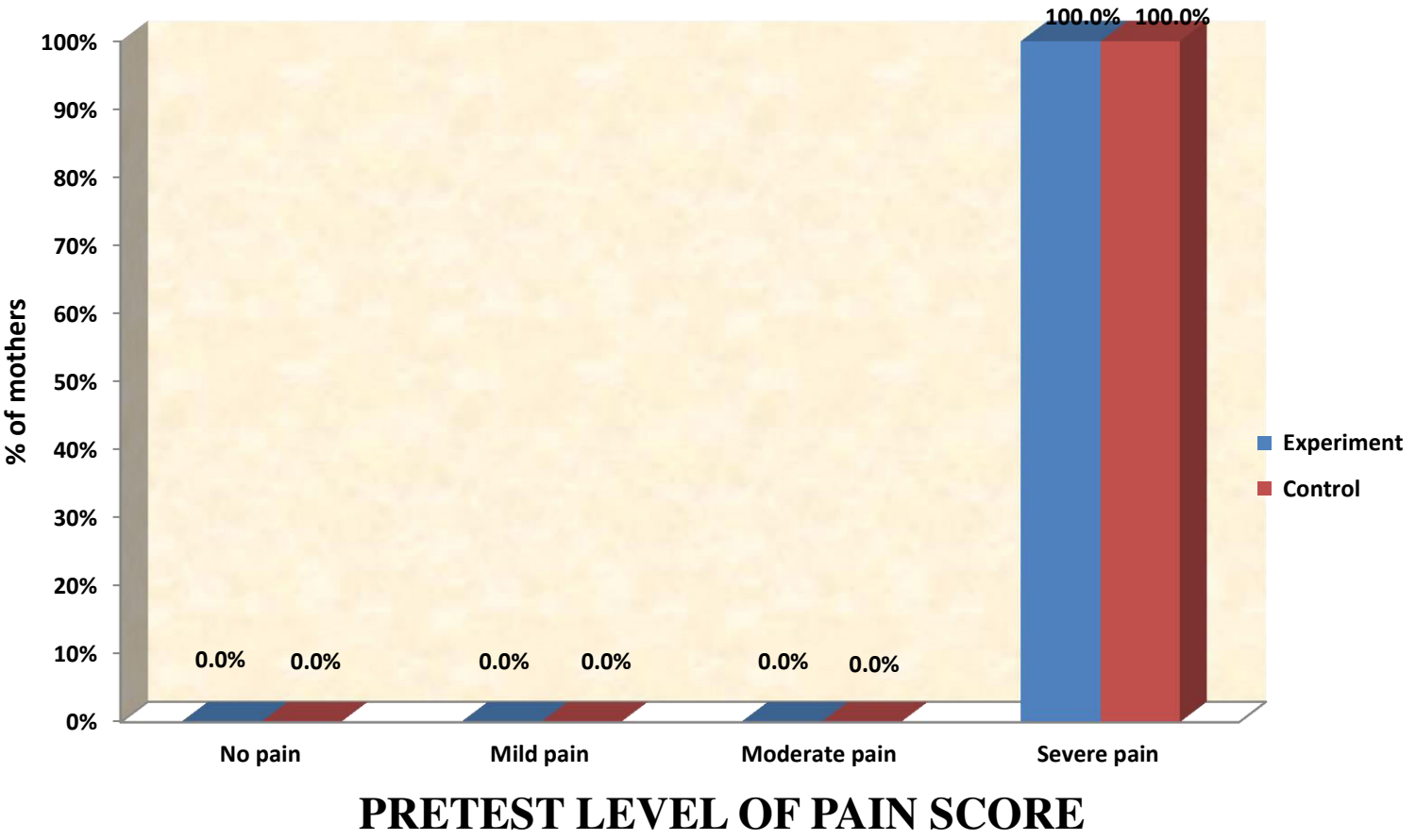


Figure:4.18 Distribution of pre-test level of pain perception score of study participants

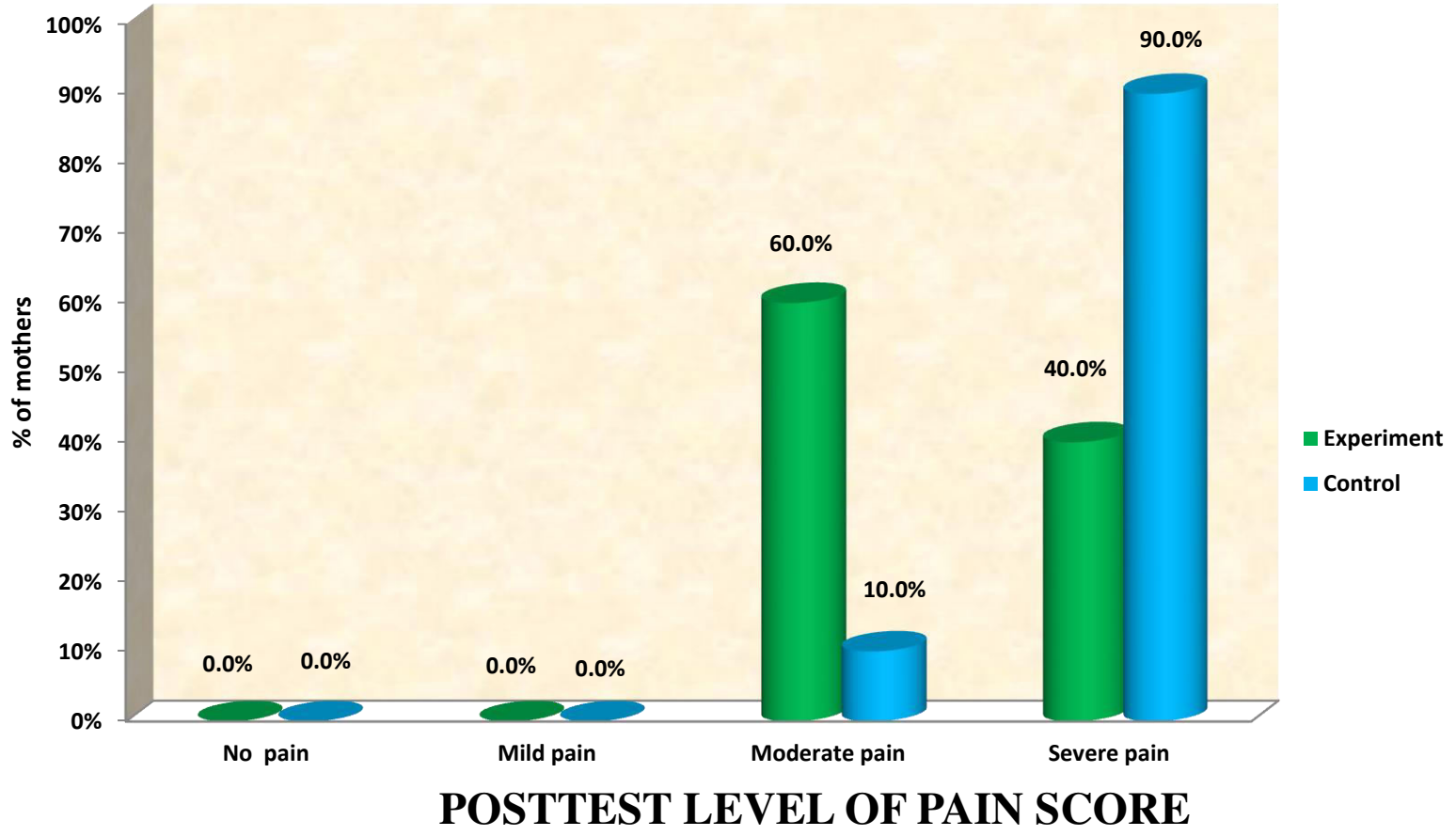
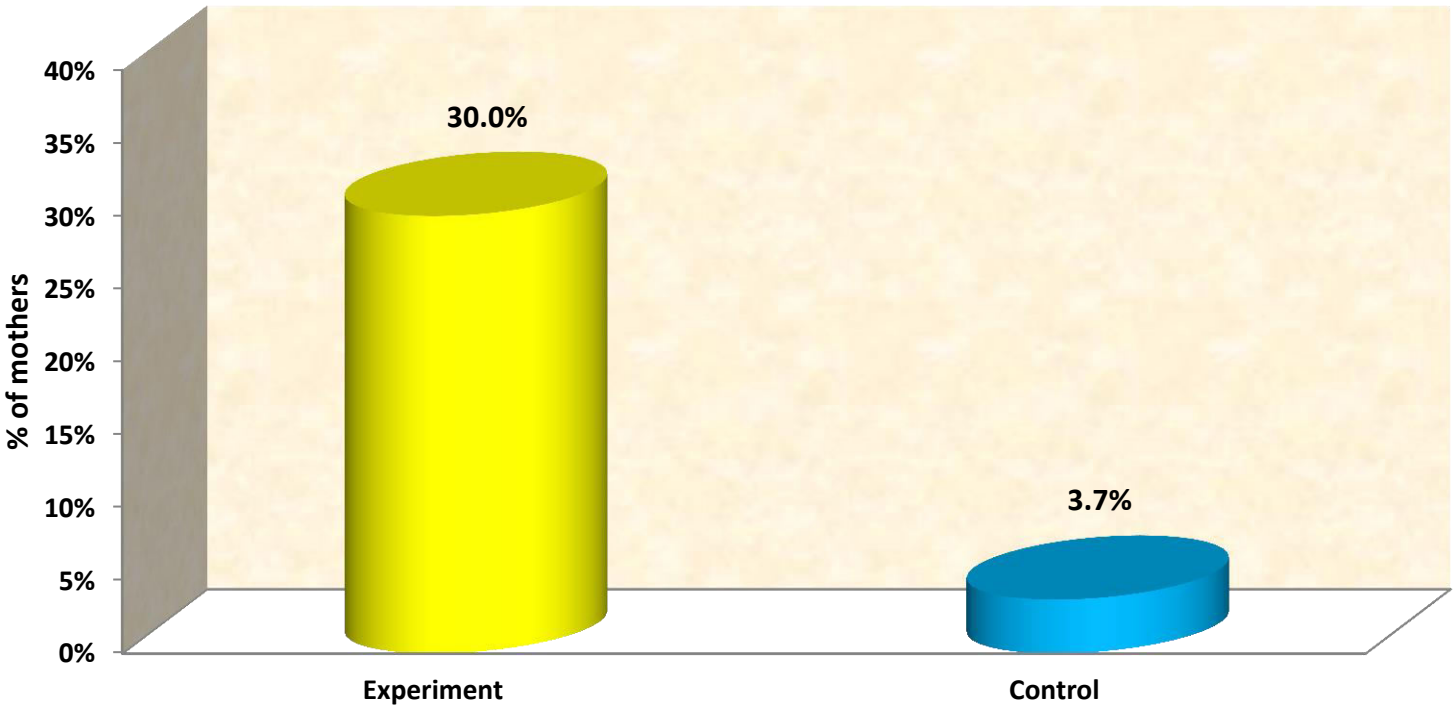


Figure: 4.19 Distribution of post-test level of pain perception score of study participants



EFFECTIVENESS OF THE STUDY BASED ON PERCENTAGE OF PAIN REDUCTION

Figure: 4.20 Distribution of effectiveness of the study based on pain reduction score of study participants

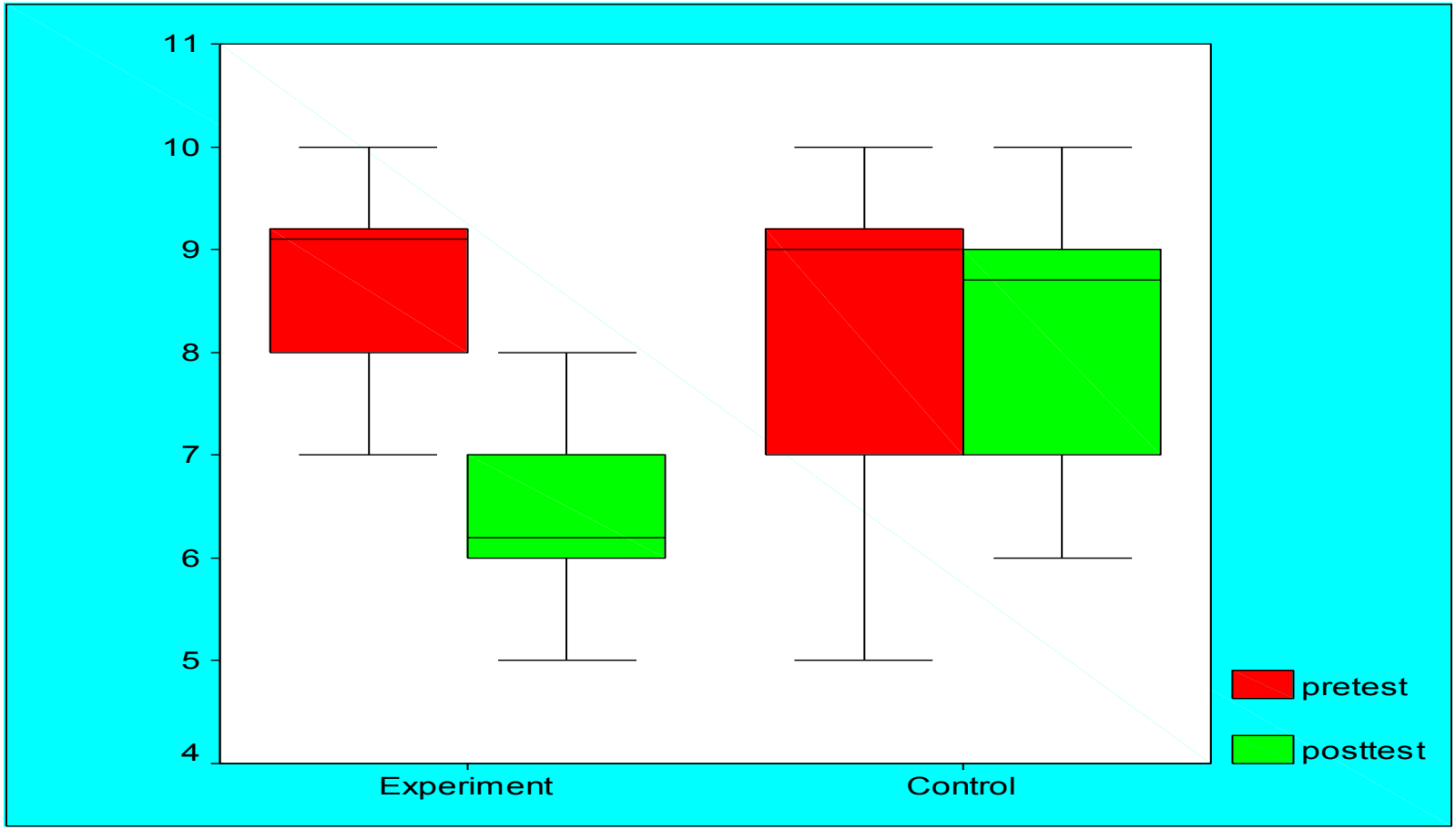
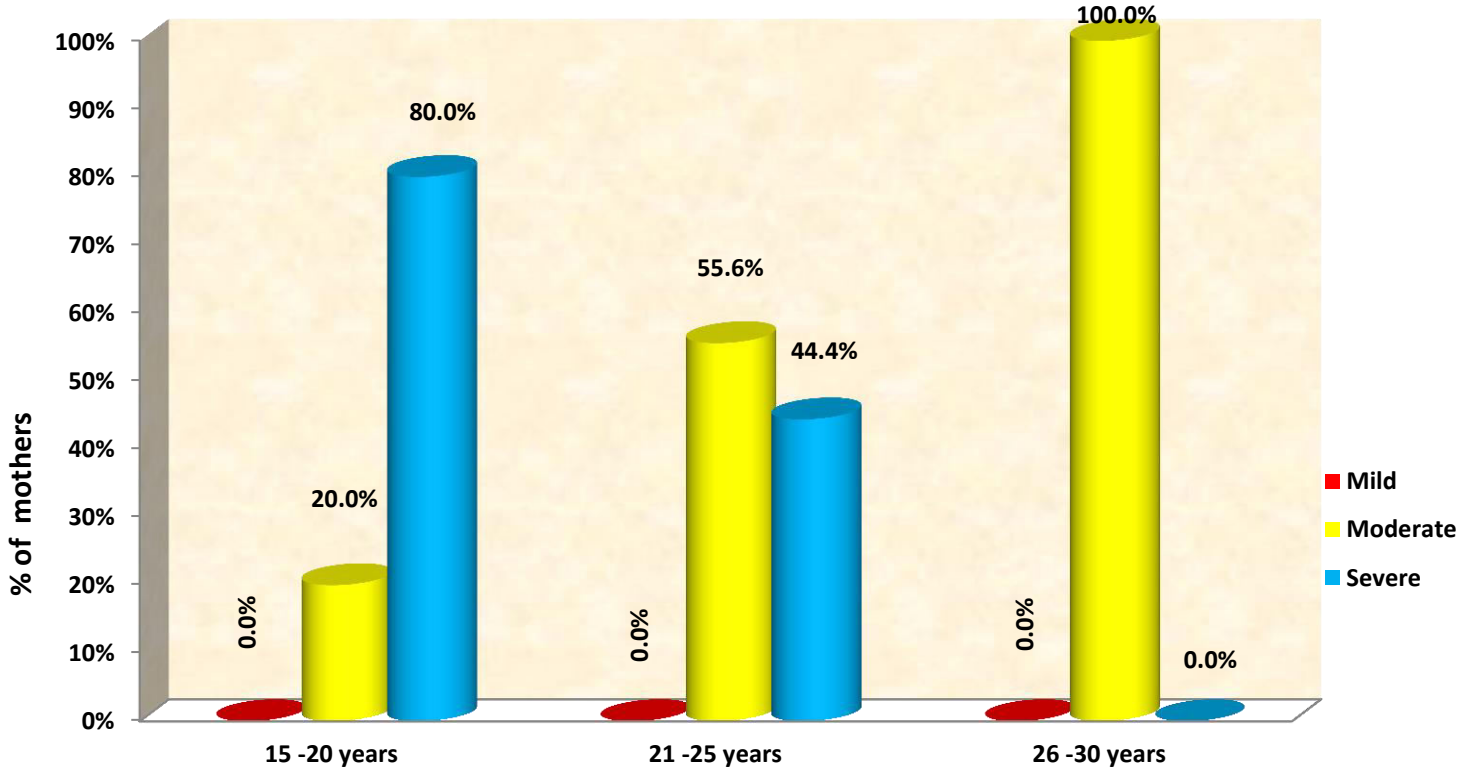
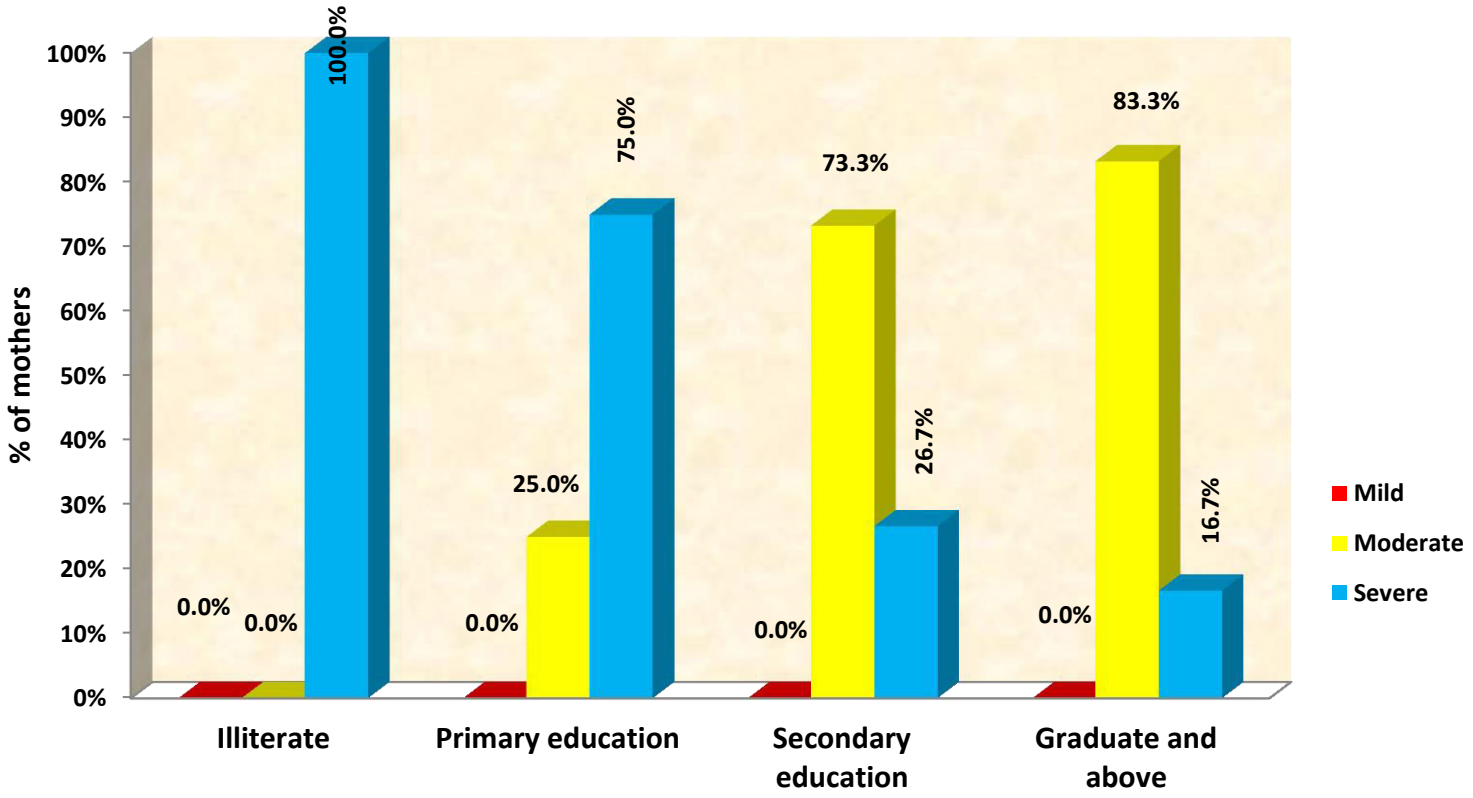


Figure: 4.21 Box-plot Compares the pre and post-test level of pain perception score of study participants



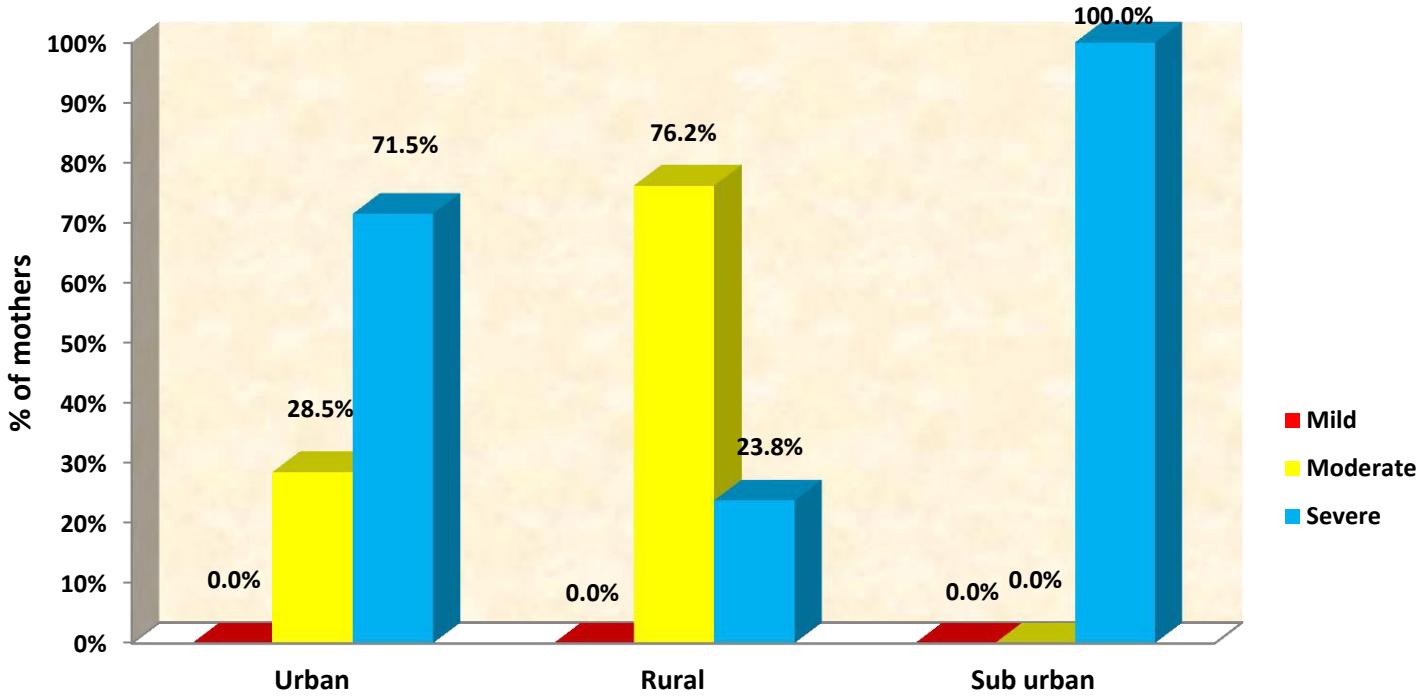
Association between mothers posttest level of pain score and Age distribution

Figure:4.22 Association between primigravida mothers post-test level of pain score and Age distribution



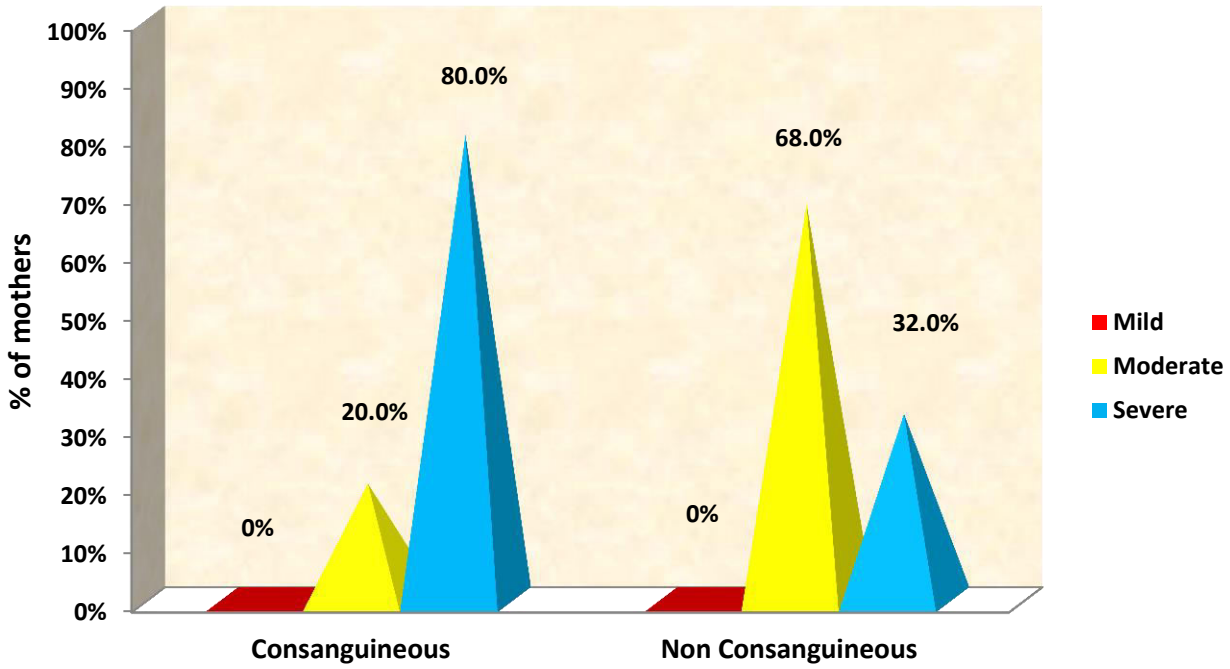
Association between mothers posttest level of pain score and Education status

Figure: 4.23 Association between primigravida mothers post-test level of pain score and Education status.



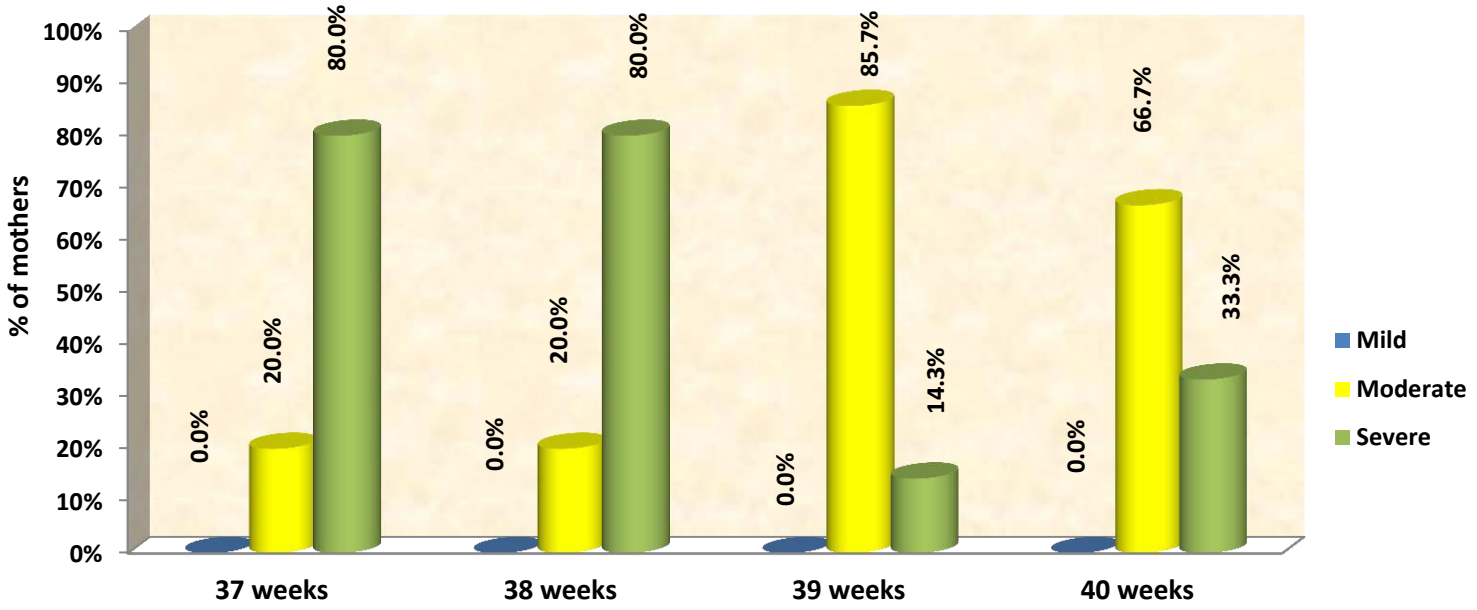
Association between mothers Posttest level of pain score and place of residence

Figure:4.24 Association between primigravida mothers posttest level of pain score and residence



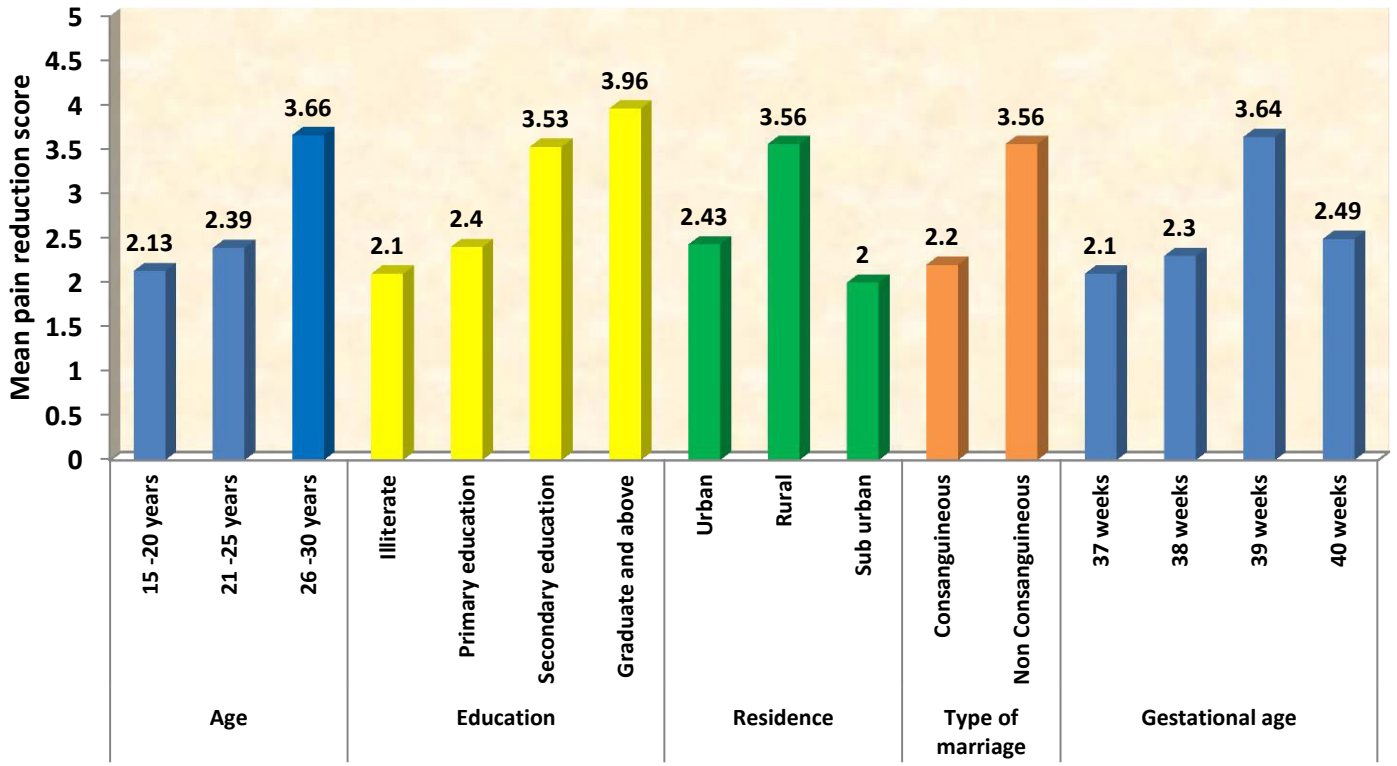
Association between mothers posttest level of pain score and Type of marriage

Figure: 4.25 Association between primigravida mothers post-test level of pain score and Type of marriage



Association between mothers posttest level of pain score and Gestational age

Figure: 4.26 Association between primigravida mothers post-test level of pain score and Gestational age



Association between mean pain reduction score and Demographic variables

Figure: 4.27 Association between mean pain reduction score and demographic variables among primigravida mothers

INFORMATION TO PARTICIPANTS

Investigator : Mrs. A. Subbulakshmi

Name of the Participant :

Title: **A study to assess the effectiveness of Moist heat application over the sacrum on pain during the first stage of labor among primigravida mothers at Institute of Obstetrics and Gynecolgy, Egmore, Chennai-8.**

This study is conducted at Institute of Obstetrics and Gynecology, Egmore, Chennai-8. You are invited to take part in this study. The information in this document is meant to help you decide whether or not to take part. Please feel free to ask if you have queries or concerns.

What is the Purpose of the study:

This Study to assess the effectiveness of moist heat to reduce the pain perception among primigravida mothers during first stage of labour.

We have obtained permission from the Institutional Ethical committee.

The Study Design

Quasi experimental Design- Pre-test and Post test control group design.

Primi gravida mothers will be divided into two groups. You will be assigned to either of the groups. One group will be given moist heat application and the other will receive routine procedures.

Study procedure

The study involves to evaluation of the pain perception of the mother before initiation of the study and mother will be evaluated the same way after the cessation of the study. The moist heat applied over the sacrum during first stage of labour you should cooperate with the procedure.

Possible Effects to You

No risks involved

Possible benefits to you

The level of labour pain perception will be reduced.

Possible benefits to other people

The result of the research may motivate the nurses to provide moist heat application over the sacrum during first stage of labour among primigravida mothers.

Confidentiality of the information obtained from you

You have the right to confidentiality regarding the privacy of your medical information (personal details, results of physical examination, investigation, and your medical history). By signing this document you will be allowing the research team investigators, other study personnel, sponsors, IEC and any person or agency required by law like the Drug Controller General of India to view your data, if required. The information from this study, if published in scientific journals or presented at scientific meetings, will not reveal your identity.

How will your decision not to participate in the study affect you?

Your decisions not to participate in this research study will not affect your outcome of labor, medical care or your relationship with investigator or the institution.

Can you decide to stop participation in the study once you start?

The participation in this research is purely voluntary and you have the right to withdraw from this study at any time during course of the study without giving reasons. However, it is advisable that you talk to the research team prior to stopping the treatment.

Signature of the Investigator Signature of the mother with date

INFORMED CONSENT FORM

Title of the study : **" A Study to assess the effectiveness of Moist Heat Application over the sacrum on pain during the first stage of labor among primigravida mothers at Institute of Obstetrics and Gynecology, Egmore, Chennai-8.**

Name of the Participant:

I ---------- have read the information in this form (or it has been read to me). I was free to ask questions and they have been answered. As I hereby give my consent to include me as the participant in this study.

1. I have read and understood the consent form and the information provided to me.
2. I have had the consent document explained to me.
3. I have been explained about the nature of the study
4. I have been explained about my rights and responsibilities by the investigator
5. I am aware of the fact that I can opt out of the study at any time without having to give any reason and this will not affect my further treatment in the hospital.
6. I hereby give permission to the investigator to release the information obtained on my study to other team personnel, sponsors, Institutional Ethics Committee and any person or agency required by law like Health Controller General of India, IEC. I understand that they are publicly presented.
7. I understand my identity will be kept confidential when the study is publicly presented.
8. I have had my questions answered to my satisfaction
9. I have decided to participate in the study.

I am aware that if I have any questions during this study, I should contact the investigator. By signing this consent form I attest that the information given in this document about the research on me has been clearly explained to me and understood by me. I will be given a copy of this consent document.

Name and Signature /thumb impression of the participant

Name---------- Signature ---------- Date ----------

Name and Signature of the investigator or representative obtaining consent:

Name---------- signature---------- Date----------

INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE, CHENNAI 600 003

EC Reg.No.ECR/270/Inst./TN/2013
Telephone No.044 25305301
Fax: 011 25363970

CERTIFICATE OF APPROVAL

To
A.Subbulakshmi
I Year M.Sc.(Nursing) Student
College of Nursing
Madras Medical College
Chennai 600 003

Dear A.Subbulakshmi,

The Institutional Ethics Committee has considered your request and approved your study titled **"A STUDY TO ASSESS EFFECTIVENESS OF MOIST HEAT APPLICATION (WARM COMPRESS) OVER THE SACRUM ON PAIN DURING FIRST STAGE OF LABOR AMONG PRIMIGRAVIDA MOTHERS AT INSTITUTE OF OBSTETRICS AND GYNAECOLOGY, EGMORE, CHENNAI 8"**
NO. 24072016.

The following members of Ethics Committee were present in the meeting hold on **12.07.2016** conducted at Madras Medical College, Chennai 3

1.Prof. C. Rajendran, MD.	Chairperson
2.Prof. Isaac Christian Moses,MD.,Dean(FAC)MMC ,Ch-3	Deputy Chairperson
3.Prof. Sudha Seshayyan, MD., Vice Principal, MMC.Ch- 3.	Member Secretary
4.Prof. B.Vasanthi,MD.,Prof of Pharmacology, MMC,	Member
5.Prof. P.Raghumani.MS., Professor of Surgery, Inst. of surgery	Member
6.Prof. Md Ali, MD.,DM., Prof & HOD of MGE, MMC,Ch-3.	Member
7.Prof. Baby Vasumathi.,MD, Director. Inst. of O&G,	Member
8.Prof. K.Ramadevi.,MD, Director, Inst of Bio-Chemistry, MMC,	Member
9.Prof. R.Padmavathy,MD., Professor, Inst.of Pathology, MMC,Ch	Member
10.Prof.S.Tito, MD, Director, Inst.of Inter Med, Ch-3.	Member
11.Tmt.J.Rajalakshmi, Junior Administrative Officer,MMC,Ch	Layperson
12.Thiru.S.Govindasamy., B.A.B.L., High Court, Chennai-1	Lawyer
13.Tmt.ArnoldSaulina, MA., MSW.,	Social Scientist

We approve the proposal to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study and SAE occurring in the course of the study, any changes in the protocol and patients information/informed consent and asks to be provided a copy of the final report.

Member Secretary, Ethics Committee

MEMBER SECRETARY
INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE
CHENNAI-600 003

CERTIFICATE OF CONTENT VALIDITY

This is to certify that the tool constructed by Mrs. A. SUBBULAKSHMI, M.Sc., (Nursing) II year, College of Nursing, Madras Medical College which is to be used in her study titled, "A Study to Assess the Effectiveness of Moist Heat Application over the Sacrum on Pain during First stage of labor among Primigravida mothers admitted at Institute of Obstetrics and Gynecology, Egmore, Chennai-08" has been validated by the undersigned. The suggestions and modifications given by me will be incorporated by the investigator in concern with their respective guide. Then she can proceed to do the research.

Place:

Signature with seal

Date:

Name: DR. K. PRIYADARSINI MD OG

Designation:

Assistant Surgeon
I.O.G. & Government Hospital
For Women and Children
Egmore, Chennai-8.

CERTIFICATE OF CONTENT VALIDITY

This is to certify that the tool constructed by Mrs. A. SUBBULAKSHMI, M.Sc., (Nursing) II year, College of Nursing, Madras Medical College which is to be used in her study titled, "A Study to Assess the Effectiveness of Moist Heat Application (warm compress) over the Sacrum on pain during First stage of labour among primigravida mothers at Institute of Obstetrics and Gynecology, Egmore, Chennai-8" has been validated by the undersigned. The suggestions and modifications given by me will be incorporated by the investigator in concern with their respective guide. Then she can proceed to do the research.

Signature with seal

OMAYAL ACHI COLLEGE OF NURSING
No. 45, Ambattur Road,
PUZHAL,
CHENNAI-600 066

Name: T. A[illegible]

Designation: Associate Prof

College: Omayal Achi college of Nsg.

Place: Puzhal.

Date: 19.11.16.

CERTIFICATE OF CONTENT VALIDITY

This is to certify that the tool constructed by Mrs. A. SUBBULAKSHMI, M.Sc., (Nursing) II year, College of Nursing, Madras Medical College which is to be used in her study titled, "A Study to Assess the Effectiveness of Moist Heat Application (warm compress) over the Sacrum on pain during First stage of labour among primigravida mothers at Institute of Obstetrics and Gynecology, Egmore, Chennai-8" has been validated by the undersigned. The suggestions and modifications given by me will be incorporated by the investigator in concern with their respective guide. Then she can proceed to do the research.

10/11/10

Signature with seal

PROF. Dr. ROSALINE RACHEL., M.Sc., (N), Ph.D.,(N)
PRINCIPAL
MMM COLLEGE OF NURSING
No.131, SAKTHI NAGAR,
NOLAMBUR, CHENNAI - 600 095.

Name:

Designation:

College:

Place:

Date:

Lr. No. 39 (S) | Con. mmc. dt. 19.11.16.

21.11.16 To AMO | AMO

From

A. Subbulakshmi,

M.Sc., (N) II year,

College of Nursing,

Madras Medical College,

Chennai -03.

To

The Director,

Institute of Obstetrics and Gynecology Hospital for Women and Children,

Egmore,

Chennai -08.

Through

Principal,

College of Nursing, Madras Medical College, Chennai -03.

Respected Sir/Madam,

Sub: Requesting permission to conduct research at Institute of Obstetrics and Gynecology Hospital for Women and Children. Chennai -08.

I, M.Sc., Nursing II year student have to conduct the research study for the fulfillment of M.Sc.(N) Programme. My topic is "A Study to assess the effectiveness of moist heat application over the Sacrum on pain during I stage of labor among primigravida mothers at Institute of Obstetrics and Gynecology" from 20-11-2016 to 18-12-2016. I assure that I will not disturb the routine activities of the labor ward.

With due respect, I request your good self to kindly permit me to conduct this research study.

Thanking you,

Yours sincerely,

A-Subbulakshmi

(A. Subbulakshmi)

Forwarded

19/11/16

DR. V. KUMARI, M.Sc(N).,Ph.D.,
PRINCIPAL
COLLEGE OF NURSING
MADRAS MEDICAL COLLEGE
CHENNAI - 600 003.

21/11/16

IOG & Government hospital for

Women & children . Egmore.

Chennai. 08 dated: 01.06.2017.

Sub: Training MSc nursing II year- obstetrics & Gynecological nursing – clinical practice .Dissertation, Practical examination and Lecture training in IOG & Government hospital for women & children. Egmore. Chennai. 08 dated: 31.03.2017 for the period from 20/11/2016 to 17/12/2016 Permission. Orders issued.

Ref: letter dated 20/11/2016 of the Head of Department. O & G Nursing, college of nursing. Madras Medical college, Chennai - 3.

****

As per the letter reference cited, the following the M.Sc II years students of Madras Medical College, Chennai -3 are permitted to undergo the clinical experience, lectures classes. University practical examination and also to carry out dissertation work in IOG & Government hospital for women & children. Egmore. Chennai- 8 for the period from 20 /11/2016 to 17/12/2016 under the guidance of the Assistant Professor of O & G mentioned against their names.

S.No	Name of the students	Name of the Assistant professor of O & G of this hospital.
1	Mrs. Alagirisamy anitha	Dr. kavitha
2	Mrs. R. Bama	Dr. sumathi
3	Mrs. J. Dhanalakshmi	Dr. A. vijayalakshmi
4	Ms. B. Hemalatha	Dr. P. Priyadharshini.
5	Ms. R. Revathi	Dr. R.Sridevi
6	Mrs. P. Savitha	Dr. sadhana.
7	Mrs. Shanthi Grace	Dr.chandrakala
8	Mrs. Subbulakshmi	Dr. K. Priyadharshini.

Director and superintendent

Director and Superintendent
Institute of Obstetrics and
Gynaecology and Govt. Hospital
for Women and Children
EGMORE. MADRAS-8

To

The individuals concerned

Copy to

Dr. K. Priyadharshini. Assistant Professor of O & G, IOG and Government Hospital for women and Children, Egmore. Chennai- 8.

தனிநபர் விபரம்

பகுதி-அ

இந்த பகுதி வயது, கல்வி, மதம், வீட்டு இருப்பிடம், வேலை, குடும்ப வகை, குடும்பத்தின் மாத வருமானம், தாயின் உயரம், எடை பற்றிய விவரங்களைக் கொண்டுள்ளது.

1) வயது (வருடங்களில்)

அ) 15-20 ஆண்டுகள் ☐

ஆ) 21-25 ஆண்டுகள் ☐

இ) 26-30 ஆண்டுகள் ☐

ஈ) 31-35 ஆண்டுகள் ☐

2) கல்வித்தகுதி

அ) படிக்காதவர் ☐

ஆ) ஆரம்பக்கல்வி ☐

இ) மேல்நிலைக்கல்வி ☐

ஈ) பட்டதாரி ☐

3) வசிக்கும் இருப்பிடம்

அ) கிராமம் ☐

ஆ) நகரம் ☐

இ) இணை நகரம் ☐

4) மதம்

அ) இந்து ☐

ஆ) கிறிஸ்தவர் ☐

இ) முஸ்லிம் ☐

ஈ) மற்றவை ☐

5) குடும்ப அமைப்பு வகை

அ) தனிக்குடும்பம் ☐

ஆ) கூட்டுக்குடும்பம் ☐

6) தொழில்

அ) இல்லத்தரசி ☐

ஆ) வேலைபார்ப்பவர் ☐

7) வேலையின் தன்மை

அ) சாதாரண பணி ☐

ஆ) மிதமான பணி ☐

இ) கடினமான பணி ☐

8) குடும்பத்தின் மாத வருமானம்

அ) ரூ.1000 முதல் ரூ.3000 வரை ☐

ஆ) ரூ.3001 முதல் ரூ.6000 வரை ☐

இ) ரூ.6001 முதல் ரூ.10000 வரை ☐

ஈ) ரூ.10001 க்கு மேல் ☐

9) தாயின் உயரம்

அ) 150 செ.மீக்கு குறைவாக ☐

ஆ) 151-160 செ.மீ ☐

இ) 161-170 செ.மீ ☐

ஈ) 170 செ.மீக்கு மேல் ☐

10) தாயின் எடை

அ) 40-50 கி.கி ☐

ஆ) 51-60 கி.கி ☐

இ) 61-70 கி.கி ☐

ஈ) 70 கி.கி.க்கு மேல் ☐

பகுதி-ஆ

மகப்பேறுக்கான தகவல்

1) பூப்பெய்திய வயது

2) திருமணத்தின் போது வயது

3) திருமண வகை

அ) சொந்தத்தில் திருமணம் ☐

ஆ) சொந்தம் அல்லாத திருமணம் ☐

4) கடைசியகாக மாதவிடாய் ஆன தேதி

5) பேறுகாலத்திற்காக குறிக்கப்பட்ட தேதி

6) கர்ப்பகால வயது

7) பேறுகால வலி ஆரம்பித்த தேதி மற்றும் நேரம்

8) கர்ப்பபையில் குழந்தை அமைந்துள்ள நிலை

9) கர்ப்பவாயில் குழந்தையின் அமைப்பு

பகுதி இ

வலியின் அளவைக் குறிக்கும் திட்ட அளவுகோல்

வலி இல்லை மிதமான வலி கூடுதலான வலி மிகவும் கூடுதலான வலி

வரையறை	அளவுகோல்	மதிப்பெண்
வலி இல்லை	0	0
மிதமான வலி	1-3	1
கூடுதலான வலி	4-6	2
மிகவும் கூடுதலான வலி	7-10	3

ஆராய்ச்சி தகவல் தாள்

ஆராய்ச்சித் தலைப்பு : முதல்குழந்தை பேறுகால தாய்மார்களுக்கு சுடுதண்ணீர் ஒத்தடம் கொடுத்து பேறுகால வலியின் அளவை ஆராய்ச்சி செய்தல்.

ஆய்வாளர் பெயர் : அ.சுப்புலட்சுமி

பங்கேற்பாளர் பெயர் : வயது:

தேதி :

ஆராய்ச்சிச் சேர்க்கை எண்:

- நான் அரசு தாய் சேய் நல மருத்துவமனையின் பேறுகால பகுதியில் முதல்பிரசவத்திற்க்காக அனுமதிக்கப்பட்டு உள்ள தாய்மார்களை திறனாய்வு மேற்கொள்கிறேன்.
- முதல்குழந்தை பிரசவத்திற்க்காக பேறுகால வலியுடன் அனுமதிக்கப்பட்ட தாய்மார்களுக்கு சுடுதண்ணீர் ஒத்தடம் முதுகுப்பகுதியில் கொடுக்கப்போகிறேன்.
- இந்த செயல்முறையின் மூலம் முதல்குழந்தை பிரசவத்திற்க்காக பேறுகால வலியுடன் அனுமதிக்கப்பட்ட தாய்மார்களுக்கு பேறுகால வலியின் தன்மையை குறைவாக உணர்ந்து கொள்ள வாய்ப்பு உள்ளது. இம்முறையை தாய்மார்கள் நன்றாக பயன்படுத்திக் கொள்ளலாம்.
- தாய்மார்கள் தங்கள் சொந்த விருப்பத்தின் பேரில் ஆராய்ச்சியில் இணைக்கப்படுவர். விருப்பம் இல்லைஎன்றால் எந்நேரமும் விலகி கொள்ளலாம். இதனால் ஆராய்ச்சிக்கு எந்தவித பாதிப்பும் ஏற்படாது.
- முடிவுகளை அல்லது கருத்துகளை வெளியிடும்போது தங்களின் பெயரையோ அல்லது அடையாளங்களையோ வெளியிட மாட்டோம் என்பதை தெரிவித்துக் கொள்கிறோம்.

ஆராய்ச்சியாளர் கையொப்போம் பங்கேற்பாளர் கையொப்போம்

தேதி : தேதி :

ஆராய்ச்சி ஒப்புதல் படிவம்

ஆராய்ச்சித் தலைப்பு : முதல்குழந்தை பேறுகால தாய்மார்களுக்கு சுடுதண்ணீர் ஒத்தடம் கொடுத்து பேறுகால வலியின் அளவை ஆராய்ச்சி செய்தல்.

ஆய்வாளர் பெயர் : அ.சுப்புலட்சுமி

பங்கேற்பாளர் பெயர் : வயது:

தேதி :

ஆராய்ச்சிச் சேர்க்கை எண்:

இந்த ஆராய்ச்சியின் விபரங்களும் அதன் நோக்கங்களும் முழுமையாக எனக்கு விளக்கப்பட்டது.

எனக்கு விளக்கப்பட்ட விசயங்களை நான் புரிந்து கொண்டு எனது சம்மதத்தை தெரிவிக்கிறேன்.

இந்த ஆராய்ச்சியில் பிறரின் நிபந்தனையின்றி சொந்த விருப்பத்தின் பேரில் பங்கு பெறுகின்றேன் மற்றும் நான் இந்த ஆராய்ச்சியிலிருந்து எந்நேரமும் பின் வாங்கலாம் என்பதையும் அதனால் எவ்வித பாதிப்பும் ஏற்படாது என்பதையும் நான் புரிந்து கொண்டேன்.

இந்த ஆராய்ச்சியின் தகவல்களை வெளியிட சம்மதிக்கிறேன். அப்படி வெளியிடும் போது என் அடையாளம் வெளிவராது என்பதை அறிவேன்.

நான் என் சுய நினைவுடனும் மற்றும் முழுமனதுடனும் இந்த ஆய்வில் பங்குபெற சம்மதிக்கிறேன்.

நான் இந்த ஆராய்ச்சிக்கு என்னுடைய முழு ஒப்புதலை அளிக்கிறேன். எனக்கு இந்த ஒப்புதல் கடிதத்தின் நகல் கொடுக்கப்பட்டது.

ஆராய்ச்சியாளர் கையொப்போம் பங்கேற்பாளர் கையொப்போம்

தேதி : தேதி :

EXPERIMENTAL GROUP

Age	Edu	Res	Rel	Family type	Occu	Work pattern	Inco	Ht	Wt	Menarche age(yrs)	Marriage Age(yrs)	Marriage type	GA (weeks)	Position	Presentation	Pre-test	Post-test
2	3	2	1	1	1	2	4	2	2	13	21	2	37	LOA	CEPHALIC	10	7
2	3	1	1	1	1	2	3	2	2	13	21	2	39	LOA	CEPHALIC	10	8
2	3	2	1	1	1	2	4	2	4	13	20	2	40	ROA	CEPHALIC	10	9
3	3	2	1	1	1	2	4	2	1	14	24	2	38	LOA	CEPHALIC	9	5
2	2	2	1	1	1	1	3	1	4	13	21	2	38	LOA	CEPHALIC	9	7
2	3	2	1	1	1	1	4	2	2	11	22	2	40	LOA	CEPHALIC	10	6
1	4	2	1	1	1	1	3	2	4	13	19	2	40	LOA	CEPHALIC	9	7
2	4	2	1	2	1	1	3	2	1	12	23	2	39	ROA	CEPHALIC	9	7
2	4	2	1	2	1	1	4	2	4	14	21	2	37	LOA	CEPHALIC	8	6
1	4	1	1	2	1	2	3	1	1	14	20	2	39	LOA	CEPHALIC	10	6
3	3	1	1	2	1	2	2	2	2	16	27	2	39	LOA	CEPHALIC	9	7
2	2	2	1	1	1	1	2	2	1	14	19	2	39	LOA	CEPHALIC	8	6
2	3	2	1	2	1	1	4	1	3	12	23	2	37	LOA	CEPHALIC	9	7
2	4	2	1	2	1	2	4	1	3	13	21	1	37	LOA	CEPHALIC	8	5
3	3	2	2	2	2	2	4	2	2	13	27	2	40	LOA	CEPHALIC	10	7
2	3	2	1	2	1	1	4	1	4	14	24	2	39	ROA	CEPHALIC	10	8
2	2	2	1	1	1	2	3	2	3	13	23	2	40	LOA	CEPHALIC	10	6
3	4	1	1	2	1	1	4	3	3	17	26	2	40	LOA	CEPHALIC	9	5
1	3	2	3	1	1	2	4	2	3	12	17	2	37	LOA	CEPHALIC	10	6
2	3	2	1	1	1	2	3	2	2	14	20	2	39	LOA	CEPHALIC	9	6
2	2	1	2	2	1	1	2	2	2	15	21	2	38	LOA	CEPHALIC	10	8
1	3	2	1	2	1	1	3	3	3	14	18	2	39	LOA	CEPHALIC	10	7
2	2	2	1	1	1	2	3	2	3	13	20	2	39	LOA	CEPHALIC	9	7
2	3	3	2	1	1	1	3	2	2	13	21	1	39	ROA	CEPHALIC	10	7
3	1	2	1	1	1	1	3	3	3	14	25	2	39	LOA	CEPHALIC	9	6
2	3	2	3	2	1	2	4	2	4	13	19	1	39	LOA	CEPHALIC	10	7
2	4	2	1	2	1	1	4	3	2	13	21	1	39	LOA	CEPHALIC	10	7
3	3	1	1	1	1	2	3	2	3	15	21	1	39	ROA	CEPHALIC	10	8
3	2	2	1	1	1	2	2	4	3	12	23	2	38	LOA	CEPHALIC	9	6
1	3	1	1	2	1	1	1	3	2	14	20	2	38	LOA	CEPHALIC	10	6

CONTROL GROUP

Age	Edu	Res	Rel	Family type	Occu	Work pattern	Inco	Ht	Wt	Menarche age(yrs)	Marriage Age(yrs)	Marriage type	GA (weeks)	Position	Presentation	Pre-test	Post-test
3	4	2	1	2	1	2	3	1	1	14	21	1	38	LOA	CEPHALIC	9	10
1	3	2	1	1	1	1	3	1	3	13	18	2	39	LOA	CEPHALIC	8	9
2	1	1	1	1	1	1	1	2	2	12	20	2	39	LOA	CEPHALIC	9	8
1	3	2	1	1	1	1	3	1	3	15	18	1	39	ROA	CEPHALIC	10	9
2	4	2	1	2	1	2	2	2	1	14	21	1	38	LOA	CEPHALIC	8	10
3	4	2	3	1	1	1	4	3	4	14	25	2	39	LOA	CEPHALIC	8	10
3	3	1	1	1	1	2	3	2	3	13	24	2	39	LOA	CEPHALIC	10	9
2	4	2	1	2	1	2	4	2	1	15	20	2	37	ROA	CEPHALIC	7	9
2	3	2	1	2	1	2	3	2	2	14	21	2	38	LOA	CEPHALIC	10	9
1	3	2	1	2	1	1	2	2	3	12	20	2	37	LOA	CEPHALIC	9	8
1	2	2	1	1	1	2	4	2	2	13	19	2	39	ROA	CEPHALIC	9	10
2	3	2	1	1	1	1	4	1	1	13	21	2	39	LOA	CEPHALIC	9	6
2	3	2	1	1	1	1	4	2	4	14	23	2	38	ROA	CEPHALIC	10	7
2	3	2	1	1	1	2	3	2	2	13	21	2	38	LOA	CEPHALIC	8	10
2	3	2	1	1	1	1	3	2	2	13	21	2	40	LOA	CEPHALIC	8	9
2	4	2	1	1	1	1	4	1	1	12	22	2	38	LOA	CEPHALIC	7	9
2	3	2	1	2	1	1	4	3	3	14	23	2	37	ROA	CEPHALIC	7	9
1	2	2	1	1	1	2	3	2	2	13	19	2	39	LOA	CEPHALIC	8	9
1	3	2	1	1	1	1	3	1	2	14	19	2	39	LOA	CEPHALIC	6	8
1	3	2	1	1	1	2	2	1	1	13	18	1	40	LOA	CEPHALIC	9	7
3	4	2	2	2	2	3	4	3	4	13	27	2	40	LOA	CEPHALIC	9	8
2	3	1	2	2	1	2	4	3	2	14	21	2	37	LOA	CEPHALIC	9	8
1	3	2	1	1	1	2	4	3	3	15	17	1	39	LOA	CEPHALIC	8	9
1	2	2	1	1	1	2	4	2	4	15	19	1	40	LOA	CEPHALIC	9	8
2	3	2	1	2	1	1	3	3	3	14	21	2	38	ROA	CEPHALIC	9	8
1	2	2	2	1	1	1	4	2	2	13	19	1	39	LOA	CEPHALIC	10	9
3	2	1	1	2	1	3	2	2	2	13	22	2	39	LOA	CEPHALIC	9	8
2	3	2	1	1	1	1	4	3	4	13	20	2	38	LOA	CEPHALIC	10	9
2	4	3	1	1	1	1	4	3	3	14	21	2	39	LOA	CEPHALIC	10	8
2	2	2	2	1	1	2	3	1	2	13	20	2	38	LOA	CEPHALIC	10	9